

Desert

OCTOBER, 1956 . . . 35 Cents



Prospector . . .

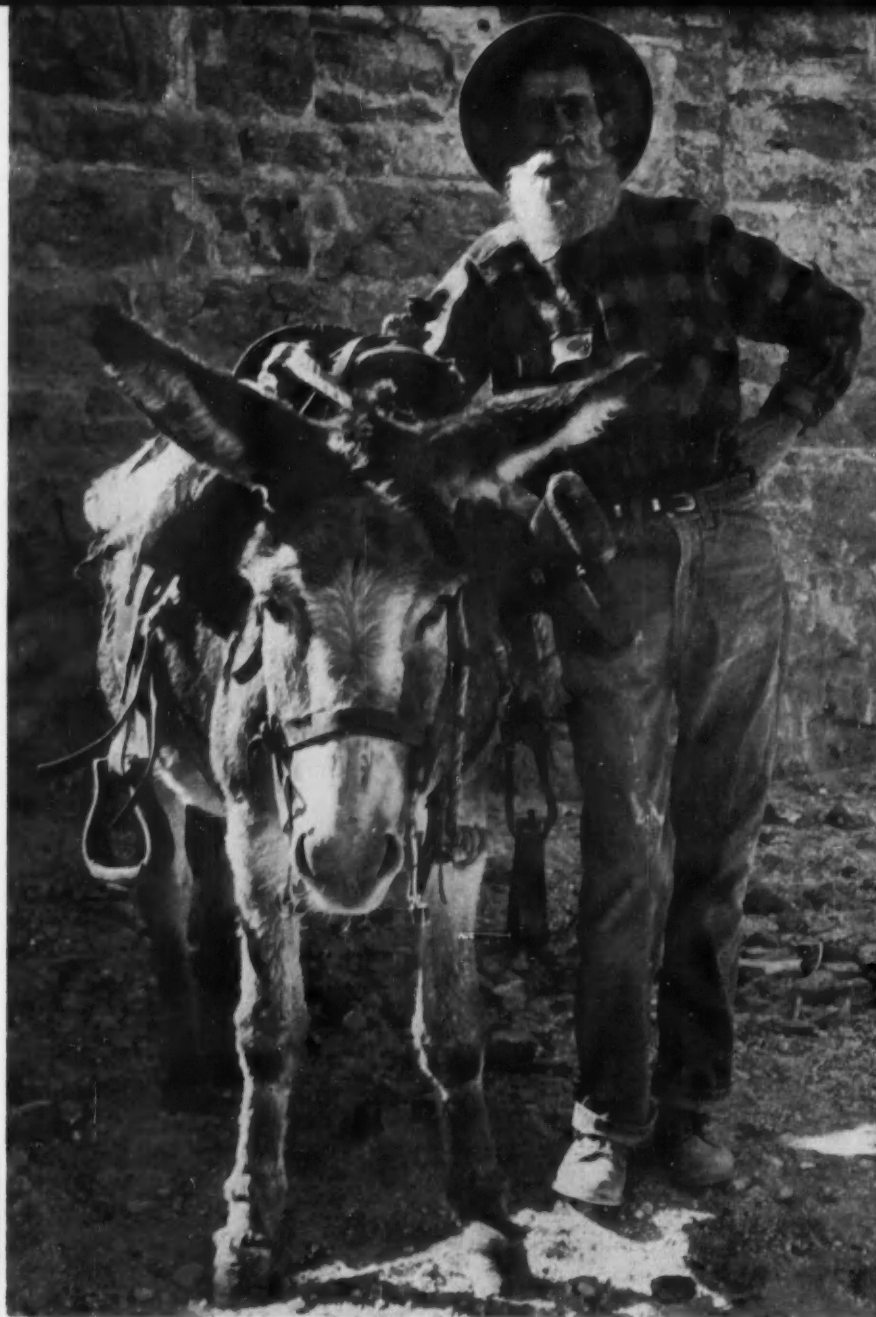
Now retired from active prospecting, veteran Arizona miner, Dave Gutierrez, now camps across the street from the mine museum in Jerome, Arizona, and collects small fees from tourists for posing for pictures. The picture by L. D. Schooler of Blythe, California, was awarded first prize in Desert's August contest. Camera data: Rolleicord camera, f. 16, 1/100 second on Plus-X film.

Pictures of the Month



El Coyote . . .

This desert singer was photographed by Adrian Atwater of Carson City, Nevada, and is this month's second prize winner. Raised from a pup by a local rancher, the coyote occasionally is used as a hunting hound. Photograph was taken with a 4x5 Speed Graphic, Tri-X film, 1/50 second at f. 32.



DESERT CALENDAR

- September 29-October 7—New Mexico State Fair, Albuquerque.
- Early October—Annual Aspen Trail Caravan from Flagstaff, Arizona.
- October 3-4—Ranchos de Taos, New Mexico, Candlelight Procession.
- October 3-4—Feast Day of St. Francis de Assisi, Santa Fe, N. M.
- October 3-7—San Bernardino County Fair, Victorville, California.
- October 4—Annual Fiesta and Dance, Nambe Indian Pueblo, N. M.
- October 5-6—Square Dance Festival, Ogden, Utah.
- October 7—Annual Colorado River Marathon, 100 mile boat race, Needles, California.
- October 9-13—Eastern New Mexico State Fair and Rodeo, Roswell.
- October 10-14—Graham County Fair, Safford, Arizona.
- October 11-14—Sixth Annual Desert Empire Fair, Ridgecrest, Calif.
- October 11-14 — Tri-State Fair and Kids' Rodeo, Deming, New Mexico.
- October 11-14—Cotton Carnival, Las Cruces, New Mexico.
- October 12-13—Third Annual Colorado River Cruise, Blythe, Calif.
- October 13-14—Tri-City Sports Car Gymkana, Ely, Nevada.
- October 14—Aspencades from Alamogordo, Santa Fe, Taos and other New Mexico communities.
- October 18-21—Covered Wagon Daze and Annual Pegleg Smith Liar's Contest, Borrego Springs, Calif.
- October 18-21 — Old Timers' Days, Hidalgo County Fair and Sheriff's Posse Rodeo, Lordsburg, N. M.
- October 20-21 — Annual American Legion Helzapoppin Rodeo, Buckeye, Arizona.
- October 20-21 — Blythe, California, Rodeo.
- October 21-27 — Southwestern Cattle Festival, Clovis, New Mexico.
- October 25-28—Pima County Fair, Tucson, Arizona.
- October 26-28—17th Annual International Desert Cavalcade, Imperial, California.
- October 27—'49ers Celebration, Socorro, New Mexico.
- October 27-28 — San Diego County Ridgerunners' First State Jeep Cruise from Desert Center to El Centro, California. This is a new organization. For further information write Arthur G. Thomas, 1040 N. Magnolia, El Cajon, California.
- October 31—Nevada Day, 1864 Ball and Parade, Carson City.
- October 31—Annual Chaves County Youth Parade, Roswell, N. M.



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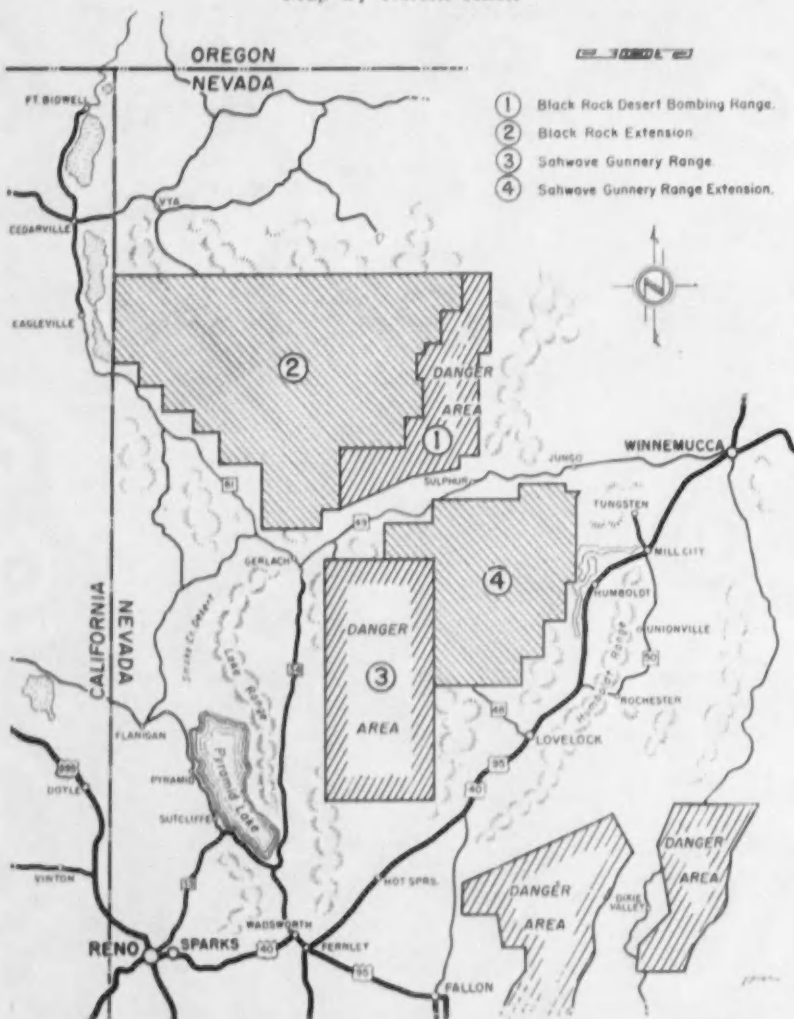
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Navy Landgrab in Nevada's Black Rock Country

Why isn't it possible for the Army, Navy and Air Force to so coordinate their training maneuvers that they can use the same gunnery and bombing ranges? Why does each branch of the service have its own private shooting grounds when, if war comes, they will have to operate as a coordinated unit? These are questions being asked in Nevada where the Navy proposes to seize another 2,800,000 acres in the Black Rock country in addition to the huge areas already reserved for aerial gunnery and bombing practice. The Black Rock landgrab will work so great an injustice on so many people that Desert Magazine asked Nell Murbarger to visit the area and report her findings. Here is her story.

By NELL MURBARGER
Photographs by the author
Map by Norton Allen



Acreages: (1) Black Rock Desert Bombing range 272,000; (2) Black Rock extension 1,372,160; (3) Sahwave Gunnery range 547,906; (4) Sahwave extension 654,720. Total 2,846,786 acres.



UNLESS PUBLIC opinion raises its voice in protest before Congress reconvenes in January, the Black Rock country of northwestern Nevada is doomed.

When I heard that the Navy was planning to convert the Black Rock-Sahwave Mountains region into a 2,846,786-acre gunnery range, I refused to believe such a thing could be possible. Previous land seizures by the armed forces had not affected me too much, personally—but this time the shoe really pinched, for the Black Rock is a land that lies close to my heart!

My liking for this strange, remote area stems chiefly, I suppose, from the fact that it is still much like the Old West of pioneer times.

It has been cattle country for more than 100 years, and great herds of white-faced Herefords, and thousands of sheep, owned by 50 individual ranchers, still graze its open range. Its canyons and mile-high valleys still abound in antelope and deer, and sage chickens, and even a few wild horses.

Most important of all, the folks who live in the Black Rock still extend the warm hospitality for which the early West was famous. At one time or another I have eaten or slept at nearly every ranch in northwestern Nevada; and until 1949, when the Navy began moving into this region and posting it with Keep Out signs, I don't recall ever having seen a trespass notice in all the 10,000 square miles between Pyramid Lake and the Oregon line. Hunters, campers, prospectors, rock-hounds—any decent person has always been welcome in the Black Rock.

And then to learn that the Navy had filed application for withdrawal of this area for use as a gunnery range from which all civilians would be excluded except at certain prescribed times and under special permit, was not a pleasant prospect for contemplation.



Quaking aspens of Lost Creek Canyon make this a delightful oasis which is always an invitation to campers.



There are many scenic vistas in the Black Rock Country including spectacular Mahogany Canyon shown above.

Not even in a land as large as the Black Rock-Sahavie Mountains area may a tract of nearly 3,000,000 acres be wrested from the civilian economy without affecting adversely a large number of persons. How many would be affected, and to what degree, I did not fully realize until after I had talked with E. R. Greenslet, director of the U.S. Bureau of Land Management, for Nevada; and with Joe Williams, director of Nevada State Farm Bureau, and secretary of Nevada-California Landowners Association. From Reno, I traveled to Lovelock, where I spent another two informative hours talking with Paul Gardner, secretary of Pershing County chamber of commerce, and publisher of *Lovelock Review-Miner*. Then I discussed the impending land-grab at length with Nevada's senior United States senator, George W. Malone.

From these several sources I learned that there were many straight-thinking persons who regarded the Black Rock encroachment as unnecessary and unjust, and that protests to this effect had been filed by many organizations of widely differing interests.

Included among those who had gone on record against the threatened seizure were the county commissioners of Washoe, Pershing and Humboldt counties; the chambers of commerce of Pershing and Humboldt; Nevada State

Farm Bureau, Nevada-California Landowners Association, Nevada State Mining Council, The Western Mining Council, Nevada Fish and Game Commission, sportsmen's clubs in the three affected counties and California, Governor Charles F. Russell, Nevada State legislature, and both of Nevada's United States senators.

By this time I was convinced that the Navy's impending grab was as unpopular with the average Nevadan as with myself. But I still didn't know the most important thing of all.

What did the people most affected think about it—the ones who were slated to lose their ranches and mines, their homes? There was only one way to find out.

Putting a can of water and some camping gear in my car, I headed for the Black Rock.

One hundred miles northeast of Reno, the oiled portion of State Route 34 trickles to a stop in the gypsum-mining town of Gerlach, population 200. This is the taking-off point for the condemned area. From here to Denio, on the Nevada-Oregon line—176 miles by way of Routes 34 and 8-A—there is not one mile of pavement, one postoffice, or gasoline station; yet this is far from being wasteland. Spread over all this remote area are cattle and sheep ranches ranging in size from 200 to 19,495 acres. One

of these ranches is owned by my friends, Dave and Bernice Iveson, and it was at their home that I made my first stop on this journey of inquiry.

Dave and Bernice have a well-tended ranch of 1000 acres of fenced and deeded land, in addition to their range rights on the public domain. Not one acre of that ranch was handed to them on a silver platter, nor improved with money that came easily. Everything they have done to enhance the value of their property has been accomplished the hard way—with long hours of labor, and honest human sweat.

Included among these improvements has been the clearing, leveling and bringing under irrigation of 220 acres of land from which, each year, they harvest bountiful yields of alfalfa, wheat, barley and rye.

The Ivesons have stout barns and outbuildings, and a comfortable home set in a grove of big cottonwoods. Across one corner of their front yard ripples a small but perpetual stream of water, from which they irrigate flowers and shrubbery, an immense vegetable garden, and an orchard of apricots, apples, pears, peaches, plums, currants, and other fruits suited to this high elevation and northerly latitude. The stream also irrigates their calf pasture, which supports about as many wild deer as it does domestic animals. Almost any morning, winter



The Soldier Meadows ranch home of Mr. and Mrs. Wesley Fick, was built to harmonize with the original buildings erected on the ranch in the 1860s. Poplars shading the house were planted 85 years ago.

or summer, it is possible to see deer grazing less than 100 yards from the front door of their house.

Dave was at the "lower" ranch harvesting hay but Bernice made me welcome. Our talk, for awhile, concerned everyday affairs—the school progress and health of their two boys and two girls, condition of the range, and mildness of the winter past. And then I brought the conversation around to the subject of the landgrab.

"What do you hear about it?" asked Bernice, her face suddenly reflecting worry and strain. "Can they really make us leave here? This is our home—we wouldn't know where to go if we had to leave here. We've just never given any thought to living anywhere but in the Black Rock country . . ."

I knew what she meant. I knew that her grandparents had settled in the Black Rock 80 years ago; that her mother had been born there, and that Bernice, herself, had been born at the south end of the Black Rock. I also knew that Dave's father had settled in this vicinity in 1906, and that Dave, too, had been born here and had lived here all his life.

"We hadn't heard anything about losing our ranch until one day a Reno real estate man and a Navy man drove into our lower ranch in a pickup and sat in the seat for a couple of minutes, glancing around, and then drove out," said Bernice. "Next, they came up here, to our home place, and did the same thing. When they started to leave here, without saying anything, I

intercepted them and asked if they were looking for Dave.

"We're appraising your property," said the Reno man. "The Navy's going to take it." That was all the information he would give. When I asked if he didn't want to talk to Dave and learn about our water rights, and grazing rights, and things of that sort, he said, "No."

"We still don't have any idea what appraisal he put on our ranch, nor what we can expect . . ."

Later that afternoon I talked with Dave Iveson. When I remarked that they had a fine looking ranch, Dave agreed. "It looks all right, now," he said. "But if you don't keep working at it everlastingly, a ranch soon begins to run down. That's what is going to happen here. I don't feel justified in putting any more expense on the place, only to have the Navy take it away from us . . . so I find myself failing to fix the fences, postponing repairs on the house and barns. I intended to clear more land this year and put it in crop; but with this threat hanging over us, I'm completely at sea. I don't know what to do . . ."

From the Iveson ranch I drove up the draw five miles to John Welch's. John is an elderly bachelor, soft-spoken, and scholarly. He lives in a neat, two-bedroom dwelling, and runs about 125 head of stock.

"The Navy hasn't even contacted me," he said. "Of course, I'm only a small operator, but this is my home and my only source of livelihood; so

I feel that their representatives at least should have come to see me . . ."

John is well informed on the subject of Nevada history, and it wasn't long before our conversation drifted around to pioneer times in the Black Rock.

"Men have been fighting to win this land for 100 years," said John Welch. "First, they had to fight bands of renegade Indians who periodically went on rampages, killed settlers and burned their homes. For years, there was the ever-present spectre of drouth—and always there was the problem of inaccessibility. Even as late as the 1920s, many roads in the Black Rock were so bad it was impossible to get even a truck over them, and it was still necessary for us to haul our supplies with freight wagons and 16-mule teams.

"But, eventually, we got a good, graveled, all-weather road through the area. We built dams and drilled wells so we didn't have to worry about dry years. We cleared land so we could raise our own winter feed; and finally we got our land fenced, and got some decent quarters built . . . And now, they say we're going to lose it all.

"What'll become of us old fellows? We're too old to start from scratch somewhere else—where will we go?"

It was a proper question, but not one that I could answer.

On the morning of the second day, I continued on north toward the old mining camp of Leadville.

It seemed to me that in all the years I had known this land, I had never seen it so beautiful. The air was clear and cool, every hill and canyon was as sharply defined as if it were etched with a knife. The sage that blanketed these mile-high valleys was all aglow with bright new growth. Turkey mullein was sending its yellow stalks aloft from the soft dust at the roadside, and all the slopes were smudged with the blue and red and gold of wild flowers. A flock of 16 sage chickens sprang into flight from beside the road; a cottontail hopped across in front of my car.

Then as I topped the hill and started across the flat near the head of Leadville Canyon—a band of 14 antelopes feeding peacefully not more than 100 yards from my road! There were three fawns in the bunch—the others were mainly does whose young were probably still hid-out in the covering sage. The trim little animals didn't move for several moments after I stopped the car to watch them; and when they finally took their departure, it was at an unhurried trot, with frequent halts to turn and stare back at me.

My way led past the pertified sequoia forest set aside last year by Nevada

for preservation as a state park. Included in this strangely isolated grove is one of the largest fossil stumps in the world—a stone giant with a circumference of 47 feet. (*Desert Magazine*; July, 1951.) I wondered how the forest would fare as part of a gunnery range.

I passed the turn-off road to Lost Creek Canyon, where a delightful grove of quaking aspen shades a small clear stream of water. This and Grass Valley, nearby, constitute some of the most important range of Bare Ranch Cattle company, a California concern, which holds a permit to graze approximately 2000 head of stock in the land now menaced by Navy seizure.

After traveling for nearly 70 miles through the rangeland threatened by seizure, I reached the junction of Routes 34 and 8-A and turned east on the latter road, soon afterward swinging southeast toward Summit Lake and Soldier Meadows.

Soldier Meadows is a fine old ranch that anyone would be proud to own. In a grove of towering Lombardy poplars, planted 85 years ago, sets a great collection of stone barns and outbuildings, and pole corrals. These buildings, erected in the 1860s as an outpost of Fort McGarry, seven miles to the north, later became one of the home ranches of the far-flung Miller & Lux empire.

One of the old Fort McGarry buildings is incorporated in the attractive new home built recently by Wesley and Theodosia Fick, who purchased the Soldier Meadows property ten years ago and moved here from Holtville, in California's Imperial Valley, where they had owned a tangerine grove. Planned to harmonize with the much older buildings surrounding it, the new house has thick stone walls, covered with woodbine, an immense living room fitted with Indian rugs, and a picture window which looks out on a tree-shaded patio, with roses and a pool, and the largest planted lawn in probably 20,000 square miles. The house is completely modern, with electric lights (from a home power plant), a tiled bathroom, and a deep-freeze well filled with home-butchered beefsteaks and out-of-season fruits.

"I didn't want to come here, at first," confided Theodosia Fick. "I had always lived in densely-settled areas, and I was terrified by the prospect of living 23 miles from my nearest white neighbor, 60 miles from the nearest postoffice—170 miles from any town where we could obtain more than the bare essentials of life. It wasn't easy growing accustomed to this sort of isolation, but, in time, I came to accept it. And, finally, I grew to love it!



Dave and Bernice Iveson, second and third generation ranchers in the Black Rock country, and three of their four children, Leslie, Zelma, and Dean. An older girl was away at Bible school, in Reno.

Now, when I have to go to the city for some reason, I can't get back here fast enough! All the while I'm away, I'm thinking about Soldier Meadows—its peace and quiet, and the clear, crisp air, and the hills . . ."

The Ficks are the largest resident operators in the Black Rock country. They have 1000 acres cleared, under irrigation and in crop, and this year will cut and bale around 1500 tons of hay. ("You should have seen our first cutting of alfalfa, this year," said Mrs. Fick. "It stood breast-high to a tall man . . .") At one time the Ficks were offered \$450,000 for their ranch, but did not sell.

"So far," said Mrs. Fick, "we have put back into the ranch every penny we have taken out—and more, too. And now, just as it was beginning to look as if we might realize some return

from our investment, the Navy says they are going to take it for a gunnery range.

I remained overnight at Soldier Meadows, and early next morning started down the valley toward the ranch owned by Vern and Ruth Parman. I was traveling, now, through a land rich in historic memories.

As at other ranches in the Black Rock country, I found men of the Parman ranch busy with their summer haying. Driving into the yard, I had barely halted my car in the shade of a honey-locust tree when a gray-haired woman called a hearty greeting from the open barn door.

Ruth was born in the Black Rock country. Vern Parman came to this area about 30 years ago and Ruth and Vern were married in middle life. Together they acquired a run-down ranch

and were building it up and were getting it in good condition when the Depression struck. With ewes dropping from \$12.50 to \$1.25 each, the Parmans went broke, lost the ranch, took a deficiency judgment, and walked off the place with little more than the clothes on their backs.

But the Black Rock breeds a strong race of men—and women—and Vern and Ruth Parman started all over again, living in a tent, doing all their own ranch work, and slowly building up another flock of sheep.

"We're doing all right now," said the gray-haired Ruth. "Our long years of work are beginning to pay off. But if the Navy takes our place—what then? Where will we go? We're too old to start again from scratch—clearing sagebrush and drilling wells, and building barns, and fencing. We can't do it at our age . . . and even if we were young enough to start over and build up another ranch, what assurance would we have that in 10 or 20 years the Navy, or some other branch of the military, wouldn't come and take that ranch, too? Where is it all going to end?"

I couldn't tell her.

Nine miles south of the Parman home is the ranch operated by aging Grover Jackson and his son, Andrew.

Grover Jackson is a short, wiry man, with gray hair, a dusty white stubble of beard half-masking a wind-weathered face, and eyes that are still bright and vitally alive. He and his forebears have lived in the West for the past 107 years.

"There's four generations of Jacksons buried in the old graveyard at Portola," said Grover. "And now I hear they're figuring to build a big dam on the Feather River that will flood the cemetery . . . Seems as if the government's bound to get us Jacksons—if not one way, then another!"

The Jacksons have a good paying ranch, with an abundance of artesian water—the three wells they have drilled flowing 2200 gallons a minute.

"It's a good ranch," said Mr. Jackson. "Yet, strangely enough, I'll feel almost as bad about leaving these mountains as I will losing my ranch! One of my greatest pleasures in life has been prowling over these old hills," he went on. "I've prospected for mineral, and hunted deer, and agates, and fossils, and Indian relics. I've traced out all the old covered wagon trails, and located emigrant campsites . . . and emigrant graves."

The old man's eyes had been fastened hungrily on the rocky Calicos bordering his ranch on the west; and now he turned to the color-blotched Harlequin hills lying across a narrow

arm of the Black Rock desert, to the east.

"I don't quite know what I'll do with myself if they take these mountains away from me . . ."

With a view toward checkmating opposition to their projected "grab," spokesmen for the Navy have pointed out repeatedly that their intended gunnery practice will not interfere with cattle grazing in the Black Rock-Sahwave area.

In my tour of the threatened area, however, I asked each rancher, in turn, if he thought it would be feasible to continue ranging cattle under conditions laid down by the Navy.

From each rancher, in turn, I received the same answer: "No!"

In its original proposal to stockmen,



Grover Jackson, pioneer rancher of the Black Rock Country.

the Navy offered to desist firing for a week in the spring and another week in the fall so that ranchers might put their cattle on the range and take them off. Later, in response to a flood of protests, the grace period was increased to a month each in the spring and fall, with Saturdays and Sundays available for inspection of forage and water resources, resupplying salt, branding calves, and caring for such other matters as might arise. But, despite these more liberalized terms, I found resident stockmen of the area agreed that cattle ranching, under such conditions, would be impractical if not completely impossible.

"They seem to think all a man has to do is to turn a bull and some cows on the range and wait for the calves to grow into beefsteaks," said Dave Iveson. "Maybe it can be done that way in the Pentagon . . . but it's not so simple under desert conditions, in northwestern Nevada!"

"For one thing, the Navy says we

won't be permitted to enter the area to harvest crops, so where are we supposed to get our hay? With alfalfa selling for \$35 a ton, plus freight, we can't afford to buy it—and at this elevation and latitude, livestock can't survive the winters without being fed.

"No," he declared. "I won't even attempt to range cattle under Navy restrictions . . ."

With my four-day tour of the Black Rock ranches completed, I returned to Gerlach, refilled my gasoline tank and water can, and headed for the Sahwave—site of a majority of the 1751 mining claims including 142 patented claims, included within the land-grab.

This was a different proposition than the Black Rock, since the 1,202,626 acres embraced within the Sahwave area had already been granted to the Navy by the Senate Armed Services Committee on June 28, 1956. But although that date was nearly two weeks in the past at time of my visit, I found everyone still in a state of complete confusion.

"We understand we're not included in the 'grab,'" said L. C. Donnelly, caretaker for the Double-O Timber and Mining company property at the old placer gold camp of Rabbithole. "But, of course," he added, "we don't know for sure . . ."

The same uncertainty was expressed by Bob Chandler, lifelong miner and resident in the Rosebud Canyon area since 1947.

"I haven't been able to learn whether my property is inside or outside the boundaries," said Bob. "I own 10 placer gold claims here, and have check stubs to show that I've spent more than \$10,000 developing them. I also have four claims of rutile ore carrying 3.95 per cent titanium—4,000,000 tons of it, engineers estimate. But I'm not in production, and I'm told that the Navy won't pay for any mines not actually operating . . . So I don't know where I stand!"

"We took \$3500 worth of concentrates from our tungsten property in only 26 days, recently—yet the Navy refuses to recognize it as a working mine," said E. K. Farnham, who, with Mrs. Farnham, has spent the past several years building a comfortable camp and developing a scheelite mine at Porter Springs, near the west base of the Seven Troughs range. They've even built a small mill, which the two of them operate without other help.

"We thought we were working toward a good thing, here," said Mrs. Farnham. "Now, we don't know what to expect . . ."

I wandered on over the Sahwave, talking to mine owners and leasers in



When the Navy proposed to cease fire for two months in the year so that cattlemen could take their stock on and off the range, one of the ranchers remarked: "They seem to think that all a man has to do is turn a bull and some cows on the range and wait for them to grow into beef-steaks." Actually, the natural range of the Black Rock

produces sleek well-fed Herefords in summer, but when winter comes it is necessary to have great stacks of hay on hand for feed when the ground is covered with snow. The Navy has not made clear how this kind of ranching can be carried on in two months out of the year.



the old gold camps of Seven Troughs and Vernon and Farrell, and Scossa and Placeritas. I visited Cow Creek, where an estimated 1,000,000 tons of the finest light perlite known still awaits the development that was halted when Navy brass began eyeing this region; and I drove north to Majuba Mountain, and the Majuba mine, owned by Floyd Tegnell, of Idaho Falls, Idaho. He is said to have paid \$175,000 for the Majuba mine and according to reports by competent engineers the mine still contains 8,000,000 tons of

copper-silver-tin ore assaying \$30 a ton at 1950 prices—since which time the price of copper has tripled. In addition, a geologist of the AEC has assertedly named this deposit as one of the four most promising uranium properties in Nevada.

Thus, in addition to the human factors I had been considering—the disruption of lives, and thwarting of hopes and plans—I was becoming increasingly aware that there was another important factor involved: That of plain dollars and cents.

Even though the Navy were to pay generously for private property confiscated, there is no reimbursement to local governments; no means of compensating a community for banishing its people and removing from the tax rolls their real and personal property—nor can there be any adequate compensation to a state for the locking-up of its proven or potential resources. No better expression of this thought is possible than that embraced in one sentence included in the report on the military landgrab hearings conducted



Water is always a problem on the Black Rock, but Rancher Grover Jackson is fortunate in having three artesian wells which flow 2200 gallons a minute.

before the Committee on Interior and Insular Affairs of the U.S. House of Representatives.

Forming the closing paragraph of that report is this succinct observation:

"The program for the defense of our nation's human and natural resources should not—and must not—be so conducted as to destroy the very resources it is aimed at preserving."

The people of northwestern Nevada are not Communists nor pacifists; nor are they prejudiced against the United States Navy, as an officer of the Fallon Naval Auxiliary Air Station suggested in a public address. They are good, plain, hardworking Americans, who believe in God and freedom, and the American way of life; and if the defense of our country demands that they sacrifice their homes and the properties they have worked years to develop, they are perfectly willing to make such sacrifice.

But—before they do so—they want to know for certain that the sacrifice they are making is necessary.

They want to know that capacity use is being made of the 24,000,000 acres of Western land now held in the grasp of the military; and they want to know that there is absolute need for the 9,000,000-odd acres of additional land sought by the armed forces during the past year.

Especially, they want to know why the Navy cannot make joint use of the nearly 4,000,000-acre Las Vegas-Tonopah Bombing and Gunnery range, in south-central Nevada—a tract that measures, in its extreme distances, 75 by 85 miles, and is the largest military base in the United States. Although a major portion of this immense reserve has not been fully used by the military for more than 13 years, it is still closed against civilian entry, and chances are it will never be returned to such economic uses as mining, graz-

ing, home and recreation sites, or homestead entry—this due to the asserted fact that most of this land is badly contaminated by unexploded mines and missiles, and that estimated costs of decontamination would be from \$12 to \$18 per acre.

But, although such contamination may preclude other usage, it would not, presumably, interfere with the suc-

cessful operation of an air-to-air gunnery range. As a consequence, many Nevadans feel that before the Navy or any other branch of the military is permitted to gobble still more millions of acres to be ravaged and cast aside, it should be forced to give serious consideration to the joint use of this immense area of idle, unproductive, tax-free, and now-useless land.

Among those subscribing to this belief are Nevada's senators, Geo. W. Malone and Alan F. Bible. Following approval of the Sahwave-Black Rock Ranges by the Senate Armed Services committee in the closing days of the 2nd session, 84th Congress, Senators Malone and Bible forced an amendment on the senate floor by which the Black Rock area was removed from that bill of approval until such time as the Navy proves its complete inability to utilize the Tonopah range in conjunction with the Air Force and the Atomic Energy Commission. Not until Congress reconvenes next January may that required proof be submitted and passed upon.

Meanwhile, the fate of the Black Rock country—and all its people—hangs in the balance.

REPORT REVEALS AMAZING EXTENT OF LAND GRABS

During the 2nd session of the 84th Congress, Representative Claire Engle of Red Bluff, California, introduced H.R. 12185 which would forbid any further withdrawal of public lands for military and naval purposes without authority from Congress. Twelve other similar resolutions were introduced by other congressmen.

In a report accompanying his resolution, Congressman Engle presented the following facts.

In 1937, the land owned or controlled by the Defense agencies totaled—including civil functions land—3.1 million acres.

In 1940, on the eve of World War II, the figure stood at 4.3 million acres.

On June 30, 1945, the Defense withdrawals had increased to 25.1 million acres.

On June 30, 1953, at the close of the Korean War the figure had dropped to 21.1 million acres, including 3.9 million acres for civil functions.

On June 30, 1955, the withdrawals had climbed again to 25.4 million acres, with applications on file from various Defense agencies for an additional eight million acres.

In other words, the Defense agencies have now posted No Trespass signs on a domain greater than the combined areas of Connecticut, New Jersey, Massachusetts, New Hampshire, Vermont and Rhode Island, and are seeking additional lands amounting to nearly the area of Maryland.

Congressman Engle, and Senator Malone of Nevada are making a vigorous fight not only to block further withdrawals of public land by the military, but also to force the various armed forces to coordinate their training operations so that a considerable portion of the withdrawn lands may be restored to the public domain.

If you are one of those who share the view that the Defense agencies have gone too far in their encroachment upon the public domain, you can help correct the situation by writing your protest to your representatives in congress.



Santa Catalina Mountains of Arizona. Somewhere in this rugged mass the Jesuits are said to have exploited a fabulous gold mine. Photograph by John L. Blackford.

Lost Jesuit Mine with the Iron Door

When the Jesuits were expelled from the New World they are said to have sealed off a fabulous gold mine north of Tucson with an iron door—and then obliterated all trails leading to it. The story of that mine and of its rediscovery over 100 years later makes up one of the most fascinating chapters of Southwestern lore.

By DONALD PAGE

SOMEWHERE IN the fastness of Arizona's Santa Catalina Mountains a few miles north of Tucson, a long lost Spanish settlement and a fabulously rich gold mine are waiting rediscovery.

Tucson's pioneers heard the tale from the old Mexican miners to whom it had been handed down from Spanish times when the ecclesiastical rule of the Company of Jesus was supreme in the *Pimeria Alta*, or what is now the southern part of Arizona.

According to the original story the mine was located close to an early

Spanish mining camp that lies on a mesa in a nearly inaccessible part of the mountains. Both mine and camp belonged to the Jesuit fathers and at the latter they built a church whose bells were cast in gold taken from the mine—a mine so rich, native metal was chopped from its walls with hatchets.

This Golconda of the New World was worked by the fathers until their expulsion from this continent in 1767. Before their departure they sealed the portal of the workings with a great iron door and then destroyed the trail to the settlement. They did this for

two very obvious reasons: first, they had hopes of returning to the New World; and secondly, they were reluctant that their successors, the Franciscans, should find this place.

But why had not the Mexicans re-located it? Surely the secret of such a fabulous bonanza could not have been so closely guarded that it escaped all except the obedient slaves who worked the mine. Why were not the Santa Catalinas swarming with gold-hungry men after the iron door was locked and the trail destroyed?

The reason was simple: Apaches.

For years the menace of these savages had grown until it became necessary to forbid women and children to

go beyond musket-shot of the presidio's walls. Even as late as 1850 Tucson was besieged by a war party of 300 braves. Nor did the danger end with the American occupation of the village in 1856. In the following summer Major Enoch Steen's dragoons moved to Fort Buchanan and with Tucson unguarded, the Apaches became so bold that one Sunday morning in the summer of 1862 or 63 a Mexican was chased into the pueblo, slain and scalped in the Plaza de la Mesilla. His Indian attacker escaped unharmed, waving his bloody trophy overhead. Under these conditions the only men who left the presidio were Mexican troops, generally too few in number to explore the locale about which this story centers.

The tale appears to be the outgrowth of an early and long forgotten Spanish gold discovery in the *Canada del Oro*, a wide, shallow canyon running southward along the abrupt western base of the mountains. A group of mysterious ruins that lie on a small mesa east of the lower end of the canyon may be a link to the lost mine. Their history has been lost along with most of the local records of that troubled period. This silent memento of bygone mining activities is a mere 17 miles north of Tucson's city hall.

The first known record of gold discovery in the *Canada* took place on June 29, 1843. On that day Colonel Antonio P. Narbona, commanding a strong military expedition against the Apaches, camped at a water-hole near the northern end of the lower reaches of the canyon. There his troopers washed out a little gold. In 1858 a few American miners worked there for a short time, but fear of the Indians caused them to leave. In May, 1870, most of the men and boys of Tucson were hard at work at the same spot, each panning between \$12 and \$30 a day, when the Apaches killed several of their number and the diggings again were abandoned. With this as a prologue, the first American version of the old tale appeared a decade later in 1880.

Solomon M. Allis, who later became United States Deputy Mineral Surveyor, wrote from Martin and Welden's Oracle camp high on the northwestern end of the Santa Catalinas that two American prospectors had stopped overnight and told him a story that, unknown to him, was destined to become the prototype of the future tales concerning the mine with the iron door.

According to the prospectors, in the fall of the preceding year they had been working in the Mexican state of Sonora. One night they took lodging near the town of Caborca with an old Mexican and his wife. Their host asked them

for mining news of Arizona, and thinking to amaze him they told the story of Tombstone's recently discovered silver bonanza. Instead of marveling at this, the old man asked if they had ever heard of the mine with the iron door. To their reply that they had but placed no credence in it, the Mexican said that he did, for he possessed a diary kept by his grandfather who had lived in the old Spanish camp and had actually worked in the mine! The Americans asked to see the book, several hundred parchment pages of much faded writing.

They studied it intently and found a passage describing the fabled settlement and directions to it and the mine. The Americans became greatly excited, but even more so after reading this entry: "Today I worked with 10 other men, and we took out 400 marcos of gold." This was equal to 200 pounds—\$38,000!

The old Mexican refused to part with his book, the last heirloom of his family, but he gave his guests permission to copy any part of it they wished. Several days were spent making translations and then they departed for Arizona. Arriving at Florence they replenished their outfit, but one of them became ill and it was not until January 10 that they were able to leave for the *Canada del Oro*, which, according to the diary, was the starting point for the mine.

Leaving their horses and burros to shift for themselves, the men hiked eastward up what they described as the "middle canyon" which became so narrow in places that the tops of its walls seemed to meet above them. That evening they camped near a spring and the following day, after five miles of hard climbing, reached a point where the canyon divided. Following their explicit directions, they took the right branch and in half a mile came to a *cul-de-sac* with precipitous walls on three sides.

The men found a flight of nearly obliterated steps cut in the left cliff-face and climbed to a shelving rock ledge where the steps ended at the narrow entrance to a cave.

Lighting candles and unslinging their Henry rifles, the prospectors entered the bat-infested cave which widened into a large vaulted chamber and again narrowed until there was barely room to pass.

They were beginning to doubt the validity of their directions when they saw the Latin blessing *Dominus vobiscum* graven in one of the walls. This gave them new hope and they pushed on. Presently they saw light ahead and at the end of the passage found themselves on the face of a sheer cliff overlooking a valley 200 feet below.

Finding no easy way to descend, the men spliced together their pack-ropes and roped down to the floor. They continued eastward for 20 minutes to a stream teeming with trout. It was late afternoon so they decided to make camp here. After catching trout for supper they sat on the bank cleaning the fish when they noticed shiny particles in the stream's sandy bottom. With their dough pan they panned out a few dollars in gold.

At daybreak they were on their way, still moving eastward. Soon they came to the ruins of the ancient mining settlement. A short distance away a granite building was reposing in a fair state of preservation. It resembled the church at Cocospora, Sonora, and the prospectors scrambled over the ruins searching for the golden bells and the treasure store that the diary said was buried in the temple. But a quick search only turned up several stones bearing Latin inscriptions.

The search for the mine was resumed—and here the details are lost from the story. However, it is said that three days later its entrance was located.

The ancient iron door had rusted away and the bars that once secured it lay on the ground at the mouth of the tunnel. They found the 10-inch wide vein carried in what seemed to be a talc-like quartz gangue. The drift followed this for 400 feet. The air became very foul deep within the mine, but the men searched on. They found some ancient iron picks lying on the floor of the drift where the Spanish miners dropped them for the last time. With these crude implements the Americans did a little work on the old breast. To their amazement each stroke of the old tools brought fragments of native gold tumbling to the floor.

The men put up location notices and were on their way to register their claims when they stopped for the night at Oracle and told Allis their story and showed him the hundred pounds of nuggets in their back packs.

In his letter, Sol Allis prefixed the story by saying that prospectors sometimes exaggerate. But, this was the first time he had heard of anyone exploring that part of the mountains, and on the strength of the tale, backed by the gold, he and several partners were preparing to leave Oracle the next day to find the hidden valley and locate placer claims—but nothing further is known of the venture—or of the two men who made the rediscovery.

Early in March of that year, Dr. T. S. Hitchcock of Tucson, displayed an exceptionally rich sample of gold, silver and galena ore that he said came from the Mine with the Iron Door.

Desert Christ Park

... A SHRINE TO BROTHERHOOD

Here is the inspiring story of two men whose deep-felt conviction that it is within the power of man to end hatred and warfare, has led them to give visual expression to the teachings of Christ along these lines. With the desert above Yucca Valley, California, as their background, Ed Garver and Antone Martin have recreated in concrete many of the New Testament's familiar scenes.

By HOWARD D. CLARK
Photographs by the author

NORTH OF THE small California desert community of Yucca Valley is a five-acre jackrabbit homestead dedicated to peace, tolerance and love. Scattered among the Joshua trees and yuccas in several settings on this sloping, rocky tract are the sculptured figures of Christ, Peter, James, John and other Biblical characters. Here too is a little chapel made of native stone and several other projects in various stages of completion.

This is Desert Christ Park, growing in displays and reputation without fanfare or lush private or public funds. It represents the hard work, imagination and faith of two men, Ed Garver, part time minister, carpenter, handyman, widely known as Eddie, the Desert Pastor; and Antone Martin, artist-sculptor.

It all began in 1947 when Garver, recently ordained as a minister by the United Fundamentalist denomination in Los Angeles, brought his family to growing Yucca Valley.

He organized church services and after a year of hard work by him and his congregation, the community had a home-made non-denominational house of worship. During these months Garver filed on a jackrabbit homestead which he intended to use as a permanent setting for Easter Sunrise Services.

Then he learned of a sculptor who was looking for a place to locate a 10-foot, four-ton statue of Christ which was at that time monopolizing the driveway of his Inglewood home. Garver visited the artist, Antone Martin, and told him about Yucca Valley.

Patternmaker at an aircraft plant near Los Angeles, Martin worked on instruments of war with the scientists who created them. This occupation troubled him for he had had a lifetime of sensitive awareness of the violence of man against man in thought as well as in deed, and it was his ardent desire to dedicate the remainder of his life to work and tools associated

with peace rather than war. There had to be a way to introduce leaven into the mass thinking of mankind—some forceful reminder that a more merciful way of solving problems than through bloodshed had long existed but was too little used.

"I was afraid of an atomic war," recalled the sculptor. "Politicians of all nations have failed to prevent wars. The only solution is in the hands of the people of the world's great religions. I personally am not interested in what these creeds are—I am satisfied to know that none of them teach the killing of one's fellow man.

"Politicians deal in power attained by inciting age-old hatreds and jealousies. If the massed millions of the world demand an end to killing, aggression, hatreds that breed conflict, to oppression of those of different skin or belief, they would have the power to prevent war. There are enough of



Antone Martin

these people and their religion teaches them precisely those things. But, somewhere along the line there has been failure. The masses have joined in condemnation and bloodshed on every occasion. Too often enemies will pray to the same god to destroy one another."

How could he influence as many people as possible to return to Christ's basic teachings? He thought of writing. Martin is a tolerant, good humored, quiet man. He is by no stretch of the imagination a religious crank. His thoughts crowd into fluent, pungent speech—the language of an as-

Martin's first statue of Christ now overlooks Yucca Valley. It is 10 feet high and weighs four tons.





"Suffer little children to come unto Me."

surely literate thinking man. But, the struggle toward writing for publication was long and complicated, so he ruled it out.

But, there was another medium left to him—sculpturing. Without formal training in that art, Martin nevertheless had long modeled finely executed prehistoric animals and human figures in concrete. And, after all, few written or spoken words of our time enjoy as long a life as the hard material of reinforced concrete image. With his hands he would symbolize the concepts of peace on earth, goodwill toward men.

Martin's first statue of Christ, the 10-foot one, was made without prior plans for placement. Various religious denominations offered to accept it—some even to buy it. But Martin was firmly opposed to inferences of sect or creed or to restrictions of any kind in the approach to his work.

Eddie, the desert pastor, knew of these restrictions, but had a solution—his five-acre claim. He invited Martin to look it over and when the sculptor saw it, nestled against the south slopes of the mountains with a commanding view of the expansive, home-dotted valley below, he agreed that here was an ideal home for his statue.

It was his determined requirement that the place remain dedicated to all humanity without discrimination. "My statue could not be the property of any institution. No visitor here need feel that he is conforming to any man-made dogma. He is free to scoff—and you would be surprised at some who do—churchmen among them," Martin said.

For permanent protection of the statue, the non-profit Desert Christ Park Corporation was formed with Garver deeding his five acres to it. Consequently, the company maintains and operates the park as a public service. Martin took up a jackrabbit homestead adjoining the park and will deed it over when requirements for title are completed. Another adjacent five acres has been promised by Fred A. Storey, one of the founders of the townsite.

The original statue was set in place just in time for the Easter services of 1951. Two years later Martin quit his job in Los Angeles and moved to Yucca Valley to dedicate the remainder of his life to creating in enduring visual form as many of Christ's teachings as he will be able to make.

His productions emphasize Christ's lessons of compassion, mercy and understanding which believers and unbelievers alike must learn and put into practice if divergent peoples of the world are to live together without conflict. He is stressing the hopeful, constructive side of religion rather than its saddening phases.

Martin receives no pay for his toils. In fact his first four figures, representing 24 tons of material, were made at his own expense and donated to the park. At 68 years of age, he is maintained by social security benefits and lives in a small trailer on the park grounds until he feels he can spare some time to erect a home on his tract.

Meanwhile, Garver handles the financial, public relations and business end of the project. Non-sectarian by inclination and practice, he agrees that the park theme transcends such divi-

sions. His chief interest always has been in pioneering groups for worship and then turning them over to others when they reach a going basis. Therefore, he resigned from the local community church last year and organized a new group at neighboring Pioneertown.

To the original statue has been added 15 characters in a scene depicting the Sermon on the Mount. These are impressively larger than life size, the 12 apostles each identified by name. At a distance across the grounds, Christ and the woman of Samaria at the well are in normal scale while the isolated group of Christ in prayer at Gethsemane and the sleeping Peter, James and John nearby are again in larger proportion.

In an appealing group, Christ faces nine parents and children in the scene: "Suffer little children to come unto Me."

Currently underway is the most ambitious production to date, the massive set for The Last Supper. It will take 125 tons of cement and a year's work. The 13 figures will show on the scale of nine feet tall at a table 30 feet long. The entire scene, cut in bas-relief in the face of a wall, is over three stories high.

Future projects include an empty tomb and the three women who belong to that scene as a backdrop for Easter services. After that Christ and the rich young ruler are planned.

The chapel was designed by Frank Garske and built by him and Garver. It seats 16 persons and provides a rare setting for weddings. Its blue plastic roof is convertible and is removed during Easter services so the people on the heights above may look into the church, and the organ music can reach out to them. Easter morning attendance has passed the 3000 mark.

Desert Christ Park's visiting hours are all hours, all days. Graded parking space, picnic facilities, water and rest room use are free. There are no fences on the property line.

"If playful children want to climb up on the lap of the seated Christ, by all means let them," says Martin, "they have always been welcome there." Guide service is beyond the means available, but Martin, seldom absent, cheerfully provides answers and explanations. During weekends a volunteer organist usually is on hand to supply music.

A conspicuous signboard on the Twentynine Palms highway one block east of the post office in Yucca Valley points the way to the park. From this intersection it is a half mile straight north over an unpaved but well-traveled road.



Superstition Mountain, the low, sandy ridge at left center of the horizon. This photograph was made from the heart of the Borrego Badlands looking southeast into the Imperial Valley of California.

Treasure Trails in Old Superstition . . .

By HAROLD O. WEIGHT
Photographs by the author
Map by Norton Allen

OLD SUPERSTITION Mountain on the western edge of the Colorado Desert in Imperial Valley, California, probably has played host to more lost mine hunters than any other mountain its size in the world. Not that it has been a very gracious host. More than one prospector paid with his life for holding too stubbornly to the notion that Pegleg Smith found

his fabulous black gold nuggets somewhere among those desolate buttes and gulches in 1830. And hundreds of men since that time suffered and thirsted and burned without solving the mountain's secret—if it has a secret.

Most everyone knows at least one version of the Pegleg legend—of how a peglegged trapper, crossing the Colorado Desert between Yuma and coastal California, came upon three black hills or three buttes or three rises on a ridge, with the slopes of one of them fairly covered with black-coated gold

With a sinister reputation far more impressive than its low, mysterious form, the sand-covered granite mass on the west side of California's Imperial Valley—Superstition Mountain—has been visited by more lost mine hunters per square yard of twisted surface than any other desert area. Strangely enough, the promise of discovery still remains high with the fortune hunting fraternity—far out of proportion to the niggardly and often tragic rewards these men have received from Old Superstition.

nuggets. Hunting the Pegleg was a popular and laudable occupation among both seasoned desert rats and foolhardy tenderfeet in the '80s, '90s and 1900s. Many of the searchers took at least one close look at Superstition Mountain.

Why was this low sandy rise so attractive? For one thing, it was right beside one of the two principal ancient Indian trails across Imperial Valley from Yuma to the coastal mountains, a logical route for Pegleg to take. And the country and the distances fitted in well with some of the Pegleg accounts.

But most luring of all to lost mine hunters, I believe, was Superstition Mountain's mysterious and evil reputation. From the days of the first white explorers, the Indians warned that old Superstition should be avoided and from their admonitions came its name. The mountain made strange noises and gave off evil odors, they said, and sometimes it quivered and shook. And it was the home of an enormous serpent that relished human flesh.

The early prospectors not only accepted most of the Indian legends, but added some of their own for the dry (no water has ever been found on it), hot and deadly mountain—it changed its shape frequently, and even its location, leading unsuspecting prospectors on to their deaths.

With such a villainous character, how could anyone doubt that old Superstition concealed a fabulous treasure?

Furthermore the mountain harbors the ghosts of other lost bonanzas. Lucile and I were attempting to trace out one of these when we first visited Superstition. We were following the

waybill to Hank Brandt's gold, as set forth in Philip A. Bailey's fascinating *Golden Mirages*, published in 1941 and a classic of the Colorado Desert country.

Brandt, according to Bailey's informants, struck it rich on old Superstition many years ago. Every spring for eight years he returned and took out about \$4000. When he died he left \$16,000 in raw and minted gold to a man who had befriended him, together with various directions for finding his mine. Because these directions are so detailed and in a country we knew so well—with clues we thought we could interpret—it seemed impossible to us that anyone who followed them carefully and intelligently would not end up with a gold mine. It still seems that way, though so far we haven't found the mine—or, at least, I don't think we have.

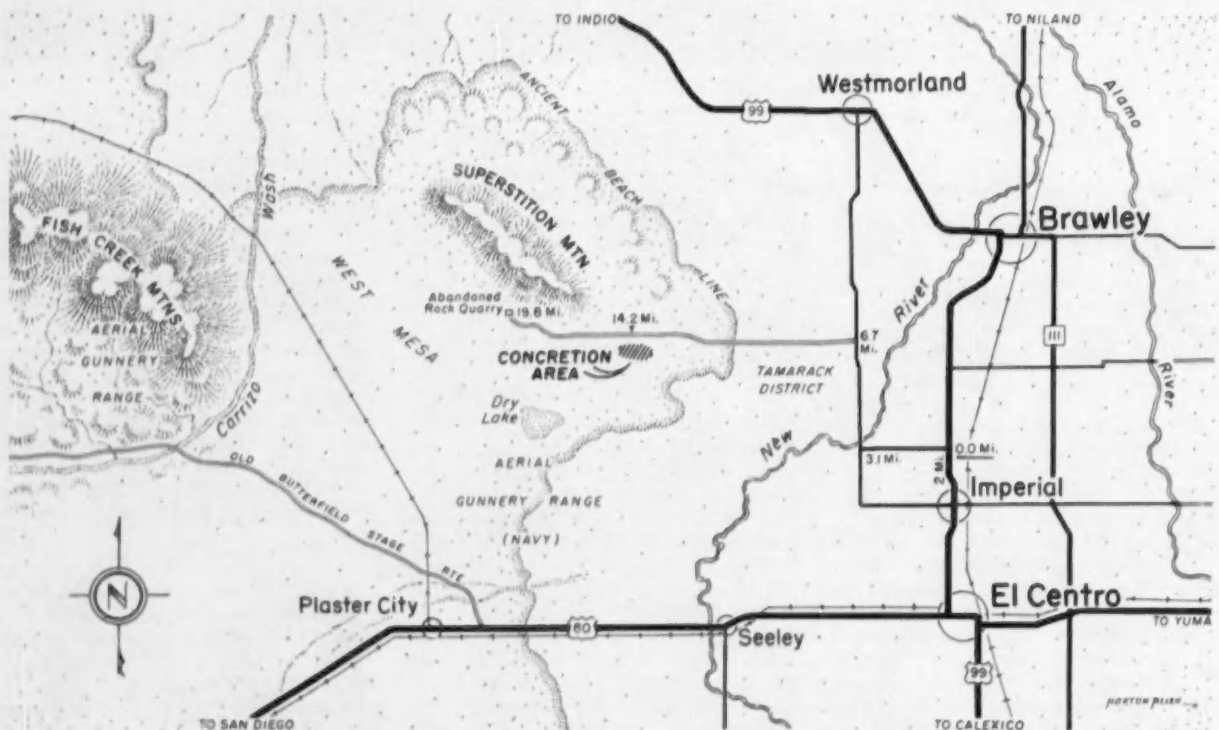
Nonetheless the search has been rewarding in many other ways. Old Superstition is rich in interest to anyone who loves wild desert. We found the sandstone and claystone outliers of the main mass of Superstition loaded with wonderful concretions, as fantastic and beautiful as any the gods of world-building ever put together in playful or creative mood.

Superstition Mountain is 15 to 20 airline miles northwest of El Centro. Although often it looks like one great dune of sand—"like a cloud of smoke," as J. S. Brown described it in his 1923

USGS report, *The Salton Sea Region*—it actually is a ridge of granite about five miles long and one mile wide, running from northwest to southeast. Brown noted that: "It is supposed by many to be an old volcano and at times is said to give off fumes, noises and mysterious signs." But, hiking several miles along its crest in the winter of 1917-18, he found that with the exception of one bed of vesicular lava and one of tuff, both about 200 feet thick and interbedded with the Tertiary sandstone at the northern edge of the mountain, old Superstition was composed entirely of uniform gray biotite granite.

Superstition, it is believed, once was part of Fish Creek Mountain which lies four miles due west, but now Carrizo Creek, with its great wash and intermittent stream, runs between them. It is certain that Superstition was an island in a pre-human sea—probably in Tertiary ages, when the sandstone was laid down to its north and east. And it is possible that it became insular again in primitive times, when Indians were making their house rings at water level along Fish Creek Mountain.

The exceedingly fine quartz sand which almost buries Superstition's southwestern face lies in dunes along its crest and encroaches upon its northeastern slope. It is believed to have come from some of those lost sea shores. The dunes, like other features



of Superstition, are peculiar, according to Brown. "They are elongated parallel to the length of the mountain. Some are almost serpentine in narrowness and sinuosity and apparently shift back and forth over the crest to some extent as the wind changes. Frequently they block canyons draining north or south and create temporarily inclosed depressions."

Brown paid a deserved tribute to the wind which brought this sand from miles away and piled it in some cases more than 500 feet above the surrounding plain, saying that it "evidently had remarkable carrying power." In fact, visitors to Superstition, where high-intensity sand blasting seems a daily occurrence, may consider this an understatement.

In the halcyon days of Peglegging, Superstition Mountain was as isolated and unapproachable as any spot on the desert. Today irrigated land in the Tamarack District has crept to within 10 miles of the mountain and farms may eventually surround it. The Navy's El Centro air station is located a few miles southeast of Superstition and it is seeking expansion of bombing and target ranges which already block off a great deal of this desert, but at this writing the mountain is open to the public.

A road from the Tamarack District offers the easiest approach to Superstition—in fact the only one suitable for standard passenger automobiles. This road leads to an abandoned county rock quarry at the southwestern end of the mountain and, while in-

End of the old road to the abandoned county rock quarry in the southwestern end of Superstition. This is the only road by which ordinary passenger cars can safely reach the mountain.



creasingly rough and with a couple of soft spots, is still a good one for a driver with desert experience.

To follow Brandt's trail, one must start from the south: "three miles east of Coyote Wells on Highway 80, turn north and cross the washes to a place where jade may be found. From here head for a certain dark-appearing cut in the Superstitions. The course leads northeastward across the old Butterfield route. If you are on the correct route, you will find a place where there

are several petrified palm trees and a pile of old whalebones. Continuing on this course, your next landmarks are two dry lakes. The larger one, at the south, has two big ironwoods on its northern edge. This dry lake is known as Dos Mesquites Lake.

"Cross the lake near the trees in such a way that the course is parallel to an imaginary line into the Superstitions. When you have found the correct entrance to the mountain (the dark cut no longer is visible as such

Fantastic shapes of some of the big concretions in this part of the desert have led many people to insist that they are the skeletons of prehistoric animals. The author believes some such concretions may have been the "pile of whalebones" which marked the trail to Brandt's gold mine.



from the dry lakes), follow the canyon upward until it reaches a small mesa, and then look for another canyon leading down the eastern front of the mountain. The walls of this second canyon are reddish-brown sandstone. In this canyon a petrified ship will be found. A deep notch where the bow of the ship lay can be seen. Sandstone has formed around the ancient ship, and at present all that remains is the curving line of the ship's beam and some petrified pieces of what was once a very fine-grained wood planking.

"Having located the canyon of the ship, follow it down to its mouth on the eastern front and then turn north along a wall of purple talc between some small hills. After passing the talc stratum, you will find a canyon similar to that containing the ship. This canyon is filled with low, stubby mesquite bushes. You then will come to a high bank out of which a big rock protrudes. Turn the corner of this rock sharply, and you will see a big ocotillo stalk set in the rocks. The mine is above in a hidden gully."

The "jade" was the easy part. Bailey, in *Golden Mirages*, says there is no jade on the desert "in the commonly accepted form of a green stone capable of a fine polish." But we long before had found a green rock of varying shades and texture scattered over the desert below Highway 80 that looked so much like China's favorite stone that we called it Yuha Jade. And I might add that a friend recently cut and cabochoned a piece and it had several of the cutting, sanding and finishing qualities of true jade, and did take a good polish. Found in a good color and without pits, it makes an unusual addition to any rockhound's collection.

The trouble is that while I have seen it nowhere in quantity, it is widely scattered through this country. We found some in the approximate location of Brandt's first clue, but whether this was the particular jade Brandt had in mind there is no way of knowing. From it we saw a dark opening into Superstition Mountain. But here the old mountain's uncanny ability to change shape and appearance under variations of heat, sun, clouds and wind-blown sand plagued us. At first we saw half a dozen dark canyons. Then, while we debated the most likely one, they all faded from view.

The next time around, we saw one near the southeastern end of the ridge, in the right compass direction, under what seemed normal viewing conditions, and set out for it. We didn't find the petrified palms—though we did pick up pieces of dark, fine-grained petrified wood, which can be found

scantly in many parts of this desert. As for the whalebones—I have heard more than one person insist that certain concretions are skeletons of prehistoric animals, and we did come upon some which we likened to whalebones.

But we didn't make the dark canyon that first trip, since old Superstition gave us a taste of the bad luck she had awarded many an earlier lost mine seeker. We were climbing to the mountain's base when the engine started missing badly. We immediately returned to El Centro.

The difficulty proved to be one grain



The man with a hole in his head—a sand concretion.

of fine Superstition Mountain sand that had gotten through to a vital valve in the carburetor. The next day we again set out for Superstition. This time, since we knew the approximate point we wanted to reach—which, fortunately, was within a few hundred yards of the gravel quarry road—we took another route to the mountain, going in through the clay and sandstone buttes that string southeasterly from Superstition's tip.

That was our undoing, so far as lost mine hunting was concerned. The buttes, ridges and gulches were rich with fantastic and beautiful concretions, and most of the day was spent wandering through them in four-wheel-drive, selecting prize specimens. It was late afternoon when we reached the area of the dark cut. I located a reddish sandstone canyon with what I judged were the remains of the petrified ship—a deep notch in the side of the canyon where the bow had rested,

a curved area in the sandstone which might mark the beam, and a few fine grained chunks of petrified wood, one of which even looked a bit like planking.

But I could not find the wall of purple talc. And since it was so near sundown, I took a short cut, climbing to the top of Superstition's ridge. Perhaps, I reasoned, I would be able to identify some of the remaining landmarks from above. It was like traveling through a dream world, wandering through those dunes and pockets of the sand world atop the mountain. But when I reached the far edge, dusk already was settling below and the whipping wind, bringing sand over the mountain crest, was hazing the scene still more.

I turned back by a different route and suddenly, in the slope of the gully wall on my left, came upon what obviously had been the dump from an excavation, almost buried by sand. Higher up the gully slope, I saw the outlines of a tunnel which had been filled almost level with sand. It was so nearly obliterated, that at a casual glance it would have gone unnoticed. I walked toward the dump to make a closer examination, and a dry rustling almost at my feet brought me up short. There, lying half under a rock, a sidewinder was pulled back into fighting stance.

It was very dark now. I was a mile from the car with no flashlight, and I knew that more of the little horned rattlers probably soon would be out foraging. So I returned to the jeep. We had to be home the next day, and it was already too late in the year to think of staying for any length of time at Superstition.

This country is not one which is safe even for experienced desert people in summer. Its heat and dryness cannot be judged by ordinary standards. J. Smeaton Chase, who made a horseback trip to Superstition Mountain in midsummer nearly 40 years ago, estimated the heat in the sun at 150 degrees and the canyon he entered like a furnace. "The glare from the ground," he said, "was more intolerable than the direct blast, and the heat was intensified by the scarring dryness. The effect upon the eyes was acutely painful."

Not having any desire to become a permanent inhabitant of Superstition, I knew that any additional checking of the tunnel I had found must wait until fall. Besides, I had no way of knowing that this was not just another worthless prospect hole of the sort that is scattered over the deserts. The thing to do was again to follow Bailey's directions—both backward and forward



A corner of the concretion field near the quarry road. This area specializes in sausages, snakes, bread sticks and similar shapes.

—to see if they led to or from the tunnel.

So far I have been unable even to re-locate the little tunnel, so devious is this terrain. Perhaps the sand has covered it completely. It is in a position where that would be possible.

I must admit, however, that my searching has not been as diligent as it might have been. Almost every lost mine hunt to Superstition turns into a concretion hunt. They are not as difficult to find, and I believe among them are some of the most remarkable I have ever seen anywhere on the desert. Chase's attention was drawn to them, despite the heat and he described them as looking like fragments of tile, large balls or grotesque shapes such as children make from lumps of plaster. Later he commented again upon the "curious shapes of clay, many of them as perfect as if turned in a lathe or cast in a mold."

These are good descriptions, but some of the shapes are more individualized. We saw snakes, sausages and salamis, giants' bones, mosaics, balls, bats, button mushrooms, napkin rings,

medallions, rhythmic sculptures, weird and wonderful animals such as a double-eared wahoo and small-winged wuk.

These concretions are spread over a wide area east and south of old Superstition, with different shapes in different spots. Many of the exposures can be reached only with four-wheel-drive or on foot. However, on our most recent trip we visited several close to the rock quarry road. One especially fine field lies less than a half mile off this road.

A word of caution is necessary regarding the hills southwest of Superstition near the Navy base. When we went through there, the Navy was concentrating its bombing at the mouth of the Carrizo on the old Butterfield road, in what is supposed to be a part of Anza State Park, and farther northwest near Borrego. At present its activity has expanded and there seems to be some bombing or target shooting closer to the base. There even is talk in the valley of a new range which will take the southeastern tip of Superstition Mountain and thus effectively

bar civilians from all of it. However, on our recent trip we saw no sign or warning along the whole length of the rock quarry road or along either side of it, or anywhere in the concretion field we mapped.

Along with its lost mines, there is another mystery of Superstition—perhaps its principal one—which we hope someday to solve. That is, the reason for its naming. We did not see any giant serpents, nor feel the mountain move nor hear it make a sound.

But Ed Stevens, oldtimer of this country who hunted through it with Indian boys when he was a youth, told us: "Some of the old miners claim to have heard it, or felt it, and I believe it is true. You know, there is a fault running through there, and if you're lying on it at night after a hot day you can hear it groan and creak — and sometimes you can feel it quiver."

So if old Superstition should start to move or grumble some night when you are camped there, we'll appreciate it if you'll stay around long enough to find out the reason, and let us know.



One of the original springs at Good Springs. Lowered water level in area now makes pumping necessary.

HISTORIC DESERT WATERHOLES V GOOD SPRINGS, NEVADA

LONG BEFORE Highway 91 was established, two sandy ruts known as the Arrowhead Trail, but often referred to as the Silver Lake cut-off, linked the towns of Las Vegas, Nevada, and Barstow, California, via Good Springs. The trail was used by adventurous travelers less concerned with their own safety than they were with the saving of 65 miles that the cut-off made possible.

When David C. Thompson wrote his Water Supply Paper 490-B in 1920 he was aware of the hazards involved in following the Silver Lake route and recommended the longer road via Searchlight and Goffs which followed the railroad most of the way and from which help could be obtained in case of serious trouble.

For west-bound travelers on the Trail, Good Springs was the last point where food, gas and oil could be obtained before Silver Lake was reached—60 miles distant. Walter C. Mendenhall, while compiling a list of desert watering places in 1909 for his Water Supply Paper 224, wrote:

"Good Springs are on the road to Sandy postoffice, about six miles west of the Jean station. There are large mines in operation near by, and a settlement has grown up around them. The supply of water is large and its quality is indicated by the name."

The water at Good Springs undoubtedly was of excellent quality, but contrary to the generally accepted belief, the springs did not acquire their name from the superiority of the water. O.

Around the surface water at Good Springs, Nevada, a community has entered the cycle of boom and bust a dozen times in the last half century. And the old-timers there are hoping that the combination of water and mineral wealth again will swing the pendulum upward for them.

By WALTER FORD
Photograph by the author

J. Fisk, now a resident of San Bernardino, told me the name was derived from an early prospector named Good.

Fisk was in Good Springs in 1892, when there was little more there than a watering trough where the hotel now stands. Later he operated the Yellow Pine and Boss mines, both of which were large producers. From 1908 to 1916 Fisk was Justice of the Peace, and recalling that in its heyday Good Springs was a typical western mining camp, with all the attending diversions, I asked Fisk to cite some of the more important cases that came before his court.

"Well," he answered with a laugh, "you will hardly believe this, but my most serious case involved a fellow who was arrested for wife beating. Then, to top it off, they went back together as soon as he was released."

I visited Good Springs recently and there met Otto Schwartz, another old-timer who has lived there since 1912. He has seen the town pass through 12

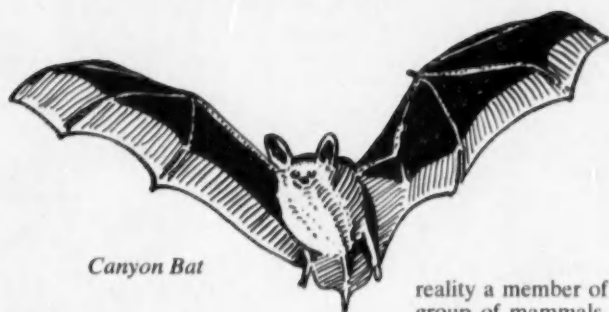
different boom periods in his 44 years in Good Springs. Schwartz told me that at the height of its prosperity the town had a newspaper, the *Good Springs Gazette*, and seven saloons.

Holiday celebrations were so extensive most of the residents of Las Vegas would journey to Good Springs for the fun. At one time the town had a Federal building in which the post-office was housed, but it has vanished from the scene. The present postoffice is in a very small cubicle, but undoubtedly large enough to serve the remaining population.

During its early days Good Springs' water supply was obtained from surface springs and artesian wells, but according to Schwartz the water level has dropped 18 feet making it necessary to pump the water to the surface. Windmills and electric pumps have been installed in several of the larger springs.

When mining operations were at their height, much lead, zinc and platinum were produced here. At present mining operations are at a standstill, but many of the older residents are hoping for another comeback. Schwartz explained their optimism this way: "I've seen this old camp go through a dozen slumps and she always has come out of it. This one is the worst I have ever seen, but we may see prosperity again from other sources. Cotton is being grown north of Good Springs and a huge deposit of picture flagstone, which is being shipped out of the state in increasing quantities, was recently discovered near here."

ON DESERT TRAILS WITH A NATURALIST - XXX



Canyon Bat

Don't despise the tiny four-footed denizens of the desert world because they are called mice. To Dr. Edmund Jaeger these little wildlings of the land of rock and sand are creatures of diligence, agility and courage and while they do not always respect the property rights of those who invade their domain, they may prove to be very entertaining neighbors.

By EDMUND C. JAEGER, D.Sc.
Curator of Plants
Riverside Municipal Museum

VOLTAIRE IN HIS Philosophical Dictionary alludes to the universal fable of the huge mountain that after hissing, groaning and roaring in labor, much to the consternation of the people of the countryside, finally gave birth only to a tiny mouse. To Voltaire this seemed to be a very great and most unbelievably important accomplishment, for small as the mouse was in comparison to the mountain, he realized what a truly marvelous aggregate of mechanical, chemical and physiological reactions the mouse was for within its diminutive body was harbored that indefinable, complex and beautiful thing called life.

Not in fable but in reality the deserts of the world have brought forth, unlike the mountain of legend, not one mouse but many kinds of mice and mouse-like animals, some of them so small and secretive in habit that they are scarcely known to any but the most careful or lucky observers; yet each of these creatures plays its small but important part in the great scheme of things, and each is an astonishing and profoundly intricate living machine well worth knowing and meriting the most careful study.

By far the smallest and probably least known of all desert mammals is the Desert Shrew (*Sorex crawfordi*). Although it looks very much like a tiny mouse, its primitive dentition and insatiable carnivorous appetite, among other things, tell us that the shrew is in

reality a member of that very primitive group of mammals called Insectivores. The Desert Shrew's diminutive, pale, ashy-gray body is scarcely more than two inches long, to which is added about an inch-long, smooth, mouse-like tail. Like all shrews, it has a long pointed snout, but unlike most others, this species has prominent eyes and ears, giving it an even more mouse-like appearance. It is a fierce beast and during its waking hours does little else than hunt for food (insects, larvae, and small rodents) among the grasses and leaves around and under shrubs and trees of its low desert habitat.

George Olin, in his *Animals of the Southwest Deserts*, describes the Desert Shrew as "... an appetite on four legs, guided by a keen nose and aided by small but formidable claws and teeth." A successful hunter this ferocious animal-midget must always be, for to be without food for more than six or seven hours means that it must miserably perish. I have seen a Desert Shrew but once in all my wide travels and then only for a fleeting but most exciting moment. This was some years ago while camping among some iron-wood trees in a wash to the east of the Colorado River. It was late in the evening and the shrew darted into a small hole from among a litter of leaves.

So little is known about this tiniest of all the desert's mammals that a few paragraphs are adequate for a full description of all its known habits. Any observations that you or I may have made or might make in the future will be a valuable contribution to the knowledge of this rare and certainly unique animal.

Midgets of the Desert World

Among the true mice of our deserts, which are all grouped into one large animal order called Rodentia, one of the most friendly is the Spiny Pocket Mouse. It may be distinguished by its small, near smoky-gray, walnut-sized hunched body, with longer coarse hairs among the shorter fur of the back (superficially looking like spines, hence its name). Other clues are its long tail ending in a brush of hairs and the animal's amusing habit of stuffing, with the aid of its fore-paws, quantities of seeds or other food particles into the two fur-lined pockets opening just outside the lips on both sides of the mouth. Pocket Mice are agile jumpers and when surprised I have seen them leap, by means of their strong rear legs, three feet with the greatest ease, using the long tail for balance.

Often have I had Spiny Pocket Mice come in around my evening fire, especially when I have camped near rocks. Sometimes they actually came so near that I could have touched them with my hand were I not fearful of frightening them. I find it is a most rewarding practice to scatter grain, food crumbs, or oatmeal on the ground about the camp before dark, for these friendly pocket mice, if at all present in the area, are then almost certain to make their appearance soon after dusk and stuff their cheek-pouches, often ridiculously full, with the tidbits I have provided. As soon as the pouches are filled to capacity, away they scamper in jerky mechanical motions to store this food in their burrows or in carefully hidden caches, often several hundred feet distant. Then in a few minutes back they appear, often approaching by diverse routes as if to



Desert Shrew

better hide any clue as to the location of the food caches. The pockets, no matter how well crammed, are quickly emptied by sweeping forward movements of the "hands."

These small-eared mice are, as a rule, active only at night. The days are spent in rather shallow burrows made in loose soil, usually under a protective bush, and it is their habit to plug the entrance openings with earth as a defense against such enemies as snakes, and also perhaps to keep the air within from becoming too dry. Because of the shallowness of their burrows, which are used as daytime hide-outs, we must conclude that they are able to withstand greater summer heat than many of the other desert rodents, such as the kangaroo rats and

small ground squirrels, which seek shelter in tunnels much deeper and often far more extensive.

These gentle, inoffensive and unsuspecting animal hermits are often dug from their burrows or seized in the open by kit foxes, coyotes, badgers, skunks, weasels, snakes and owls. I once saw a badger dig in after one; the job was completed in less than half a minute! It is fortunate that pocket mice have fairly large litters of young (from three to six) and that they breed at least twice a year, otherwise their chances for survival against so many enemies would be small, indeed.

There is another desert-dwelling pocket mouse, called Baird's Perognathus (*Perognathus flavus*), which is little more than four inches in total

length and almost half of that is tail. It has the distinction of being rated the smallest rodent in the southwestern desert area, perhaps the smallest in America. Its weight is less than half an ounce, but what a marvelous quantum of good life is packed into that mite of flesh!

"Few small mammals," says Vernon Bailey, "are more beautiful than these silky, bright-eyed mice. They are timid and when caught in the hands will struggle to escape, but make no attempt to bite or scratch. If held gently they soon become quiet and they may be stroked as they sit in the open hand."

The Dwarf Kangaroo Mouse, or Gnome Mouse (*Microdipodops*), so small that it fits neatly into the cupped palm of the hand, looks much like a Pocket Mouse except for size, it being slightly larger. It is a rather rarely seen mammal, confined to certain limited sagebrush areas of the far western portions of the arid Great Basin. I saw my first Gnome Mice by aid of a flashlight in the sandy parts of Fish Lake Valley in western Nevada. Identification was easy because of this mammal's unusual peculiarity of having a tail which is noticeably thicker at the middle. The burrows were made in sand under the roots of spreading bushes as a protection against predators. Like those of the Pocket Mouse they are plugged with earth during daylight hours. A Gnome Mouse burrow that we dug into had a total length of little more than four feet and at no place did it extend more than ten inches beneath the ground surface.

There still is much to be learned about the behavior and adaptations of the small, seed-eating, arid-land Gnome Mouse. When next you go into the sandy sagebrush deserts of northeastern California and adjacent Nevada and Oregon, plan to camp in *Microdipodops* territory and be on the lookout for them. Perhaps you can add a bit of information concerning their elusive habits.

Another gentle, small-sized mouse denizen of the desert well worth familiar acquaintance is called Cactus Mouse (*Peromyscus eremicus*) because its most preferred habitat is any area covered with cactus; however, it also may be found in many other environments. The specific name "eremicus" means "of dry lonely places." Mice of the genus *Peromyscus* are sometimes popularly called Deer Mice, perhaps because of their prominent

Sketches of Desert Shrew and Canyon Bat by Lloyd Mason Smith. Sketches of Baird's Pocket Mouse and Desert White Footed Mouse by Edith J. Johnson.

TRUE OR FALSE:

and start making crosses after the questions below. The law of averages should give you 10 correct answers even if you have never seen the Great American Desert. But you'll probably do better than that. A smart desert rat will average about 15, and that is a good score. If he gets 18 correct he is entitled to sign S.D.S. after his name—Sand Dune Sage. The answers are on page 30.

- 1—You can tell the age of a rattlesnake by the number of buttons in its rattle. True..... False.....
- 2—Water in the Great Salt Lake has a higher salt content than ocean water. True..... False.....
- 3—Tortoises found in the desert country are hatched from eggs. True..... False.....
- 4—The blossom of the Ocotillo is always red. True..... False.....
- 5—Pinyon nuts grow underground like peanuts. True..... False.....
- 6—Elwood Mead, for whom Lake Mead was named, was former commissioner of the U. S. Bureau of Reclamation. True..... False.....
- 7—Roosevelt dam is in the Gila River. True..... False.....
- 8—Malachite and Azurite often are associated in the same ore. True..... False.....
- 9—Tallest native tree of the desert southwest is the palm. True..... False.....
- 10—The foliage of the juniper tree turns yellow when the frost comes in the fall. True..... False.....
- 11—Land acquired in the Gadsden Purchase was bought from France. True..... False.....
- 12—Brigham Young brought the first Mormon colonists to Utah before the Civil war. True..... False.....
- 13—An arrastre was a tool used by the Spaniards for recovering gold. True..... False.....
- 14—Winnemucca, Nevada, was named for a famous Apache Indian chief. True..... False.....
- 15—According to Indian legend *Sipapu* is the name of the opening in the earth through which the first tribesmen emerged from the underworld. True..... False.....
- 16—Publisher of the Desert Rat Scrap Book is Harry Oliver. True..... False.....
- 17—The Bandelier National Monument is in New Mexico. True..... False.....
- 18—Ajo, Arizona, is famous for its silver mining industry. True..... False.....
- 19—Asbestos is derived from a species of tree which grows on the desert. True..... False.....
- 20—Furnace Creek Inn is located in Nevada's Valley of Fire. True..... False.....

black eyes, unusually large ears, and buffy gray fur of the upper body. Since the underparts as well as the feet of these mice are covered with beautiful white fur, they often are called White-footed Mice.

Sooner or later the Jackrabbit Homesteaders almost are certain to have the inquisitive and often mischievous White-footed Mouse as a fellow-dweller in their small cabins and no doubt a frequent raider of their food supplies. Look upon this little mouse as a friendly guest rather than as a total nuisance and you will be rewarded by some most unusual and highly interesting experiences. Like their relatives, the Pocket Mice, the White-footed Mice have cheek pouches (their generic name means "pouched mouse"). They also are adept pilferers of breakfast foods and seeds of all kinds which they carry away to augment their wild food stores. It should not come as a surprise if they do, as they once did for me—lay up neat hoards of seeds between the folds of blankets. Several times they have made their snug semiglobular nests in my closet; once, even in my bureau drawer, and I was not too angered when I later found them raiding my cotton comforter for nest-lining. Often I saw them at dusk as they scampered along the upper sides of my desert house rafters and after dark I sometimes faintly heard their numerous perambulations about the floor underneath my cot as they scanned the place for crumbs.

One very windy night a lad who was camping with me laid his sleeping bag snugly up under a big bladderpod bush which grew next to a high clay embankment to secure some shelter from the strong gusts. I warned him that he might have rodent visitors during the night. Sure enough, that night he awoke when a White-footed Mouse bit him on the nose, perhaps recognizing there a tasty bit of flesh for a midnight snack. His story I at first doubted, but there were clear toothmarks to be seen next morning. The interesting and surprising thing is that this experience had a sequel, an exact repeat just a week afterwards when a second lad made his bed under that same wind-protecting bush, and was bitten during the night, again on the nose, probably by the very same mouse! Both boys became fully convinced that



Desert White-Footed or Deer Mouse.

meat must be a part of the bill-of-fare of this Deer Mouse, at least.

Some evening at sundown or just after, you may notice a small bat swinging about above your camp in erratic flight as it goes forth from some rock hide-out in the nearby cliffs or rocky hills while engaging in its evening foragings for insect food. This is the Western Pipstrellid, or Canyon Bat, sometimes also called the Pygmy Bat. Of course bats are not rodents; they belong to the special mammalian order, Chiroptera, but their bodies, exclusive of the membranous wings, do certainly resemble those of mice. Because of its small size and early evening appearance, the Canyon Bat is very easy to identify; most other desert bats do not appear until it is quite dark and they are generally much larger in size. Even on evenings of quite cold days this little bat occasionally may be seen abroad.

The late Dr. Joseph Grinnell tells of one occasion when he saw a Canyon Bat appear in flight in the glaring noon-day sunshine. He noticed it as he was boating down the Colorado River. "The bat," he wrote, "dipped down to the surface of the water where it touched and thence flitted back to a crevice in a nearby cliff."

The Canyon Bat is found throughout most of the arid country of the West. Once you recognize it you will always welcome its appearance above your camp. To scientists it is known as *Pipistrellus hesperus*. *Pipistrellus* is a New Latin word derived from the French word "pipistrelle," meaning "bat"; "hesperus" is the Latin word for "evening."

If you have become curious about these little desert denizens I have described and if now you desire to observe them at first hand on your next trips desertward, then I will have been well rewarded. To me the desert mice and bats are as interesting as any of the more spectacular and larger animal inhabitants. On many nights when I have camped in some strange far-away

spot I have always felt welcome and there came to me a sense of belonging to the fascinating world of the wild when a pocket mouse, a bat or other small animal came to my camp. I now could no longer feel lonesome and as I saw my new neighbor never did I fail to marvel and admire the diligence, agility and courage of these "children brought forth by the mountain," as the fable has it.

PUBLIC WARNED OF NEW DESERT LAND SCHEMES

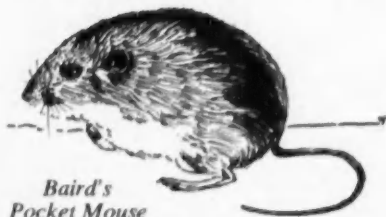
Several new angles are being used by desert land locators to bilk the unwary and inexperienced city dweller who wants to own some of the federal government's vast desert holdings, Representative Cliff Young of Nevada warned. He said the FBI is investigating the new schemes which appear to have become widespread.

The new racket is more elaborate than those recently employed which consisted almost entirely of advertised assertions that the government was eager to transfer unlimited acres of a veritable Garden of Eden at \$1.25 each.

Emphasis in the new racket still is placed on the \$1.25 an acre cost, but the carefully prepared brochures and other forms of advertising omit the fact that the government requires an applicant for government land to have personally inspected it before filing.

The promoters are eager to relieve the applicant of that and other details and for a fee of \$10 an acre—\$3200 for a 320-acre application—they will locate the land, prepare the application, including the state water permit, irrigation plan and all other material to be submitted to the land office.

To the man in the city, who usually does not have a clear conception of what a desert claim is, \$3200 for 320 acres, with all the described services included, sounds like a very attractive proposal, but he has no realization of all the stumbling blocks that lie in his path from that point on, Young declared.—Reese River Revell



Baird's Pocket Mouse



Saguaroland, Pima County, Arizona. In the background are the Santa Catalina Mountains. Photograph by the author.

Wings in Saguaroland . . .

By J. L. BLACKFORD

IN THE DESERT'S weird saguaro forests, where mighty succulents replace familiar trees, we find the woodland's most characteristic inhabitants, its most faithful guardians—the woodpeckers. Here in the Arizona desert the Gilded Flicker and Gila Woodpecker no longer are pioneers in a fantastic land. Their association is so old that the former's occurrence is nearly limited to the range of the giant cactus. And the adaptation of their wood drilling and nest-hole excavating activities in this odd cactus country has long since opened saguaroland to settlement by a peculiar fraternity of winged inhabitants.

Most typical of the feathered neighbors who occupy the abandoned homesites of the woodpecker architects in trunks of the great cacti, are the Sparrow Hawk, Pygmy and Elf Owls, Crested Flycatcher and Purple Martin.

The Screech Owl may not wait for

a deserted woodpecker apartment. So much at home now is the redoubtable little nocturnal hunter that frequently it does not hesitate to dispossess the amiable flickers from their towering cacti apartments. Ash-throated Flycatchers, too, are regular tenants and cavity nesters here.

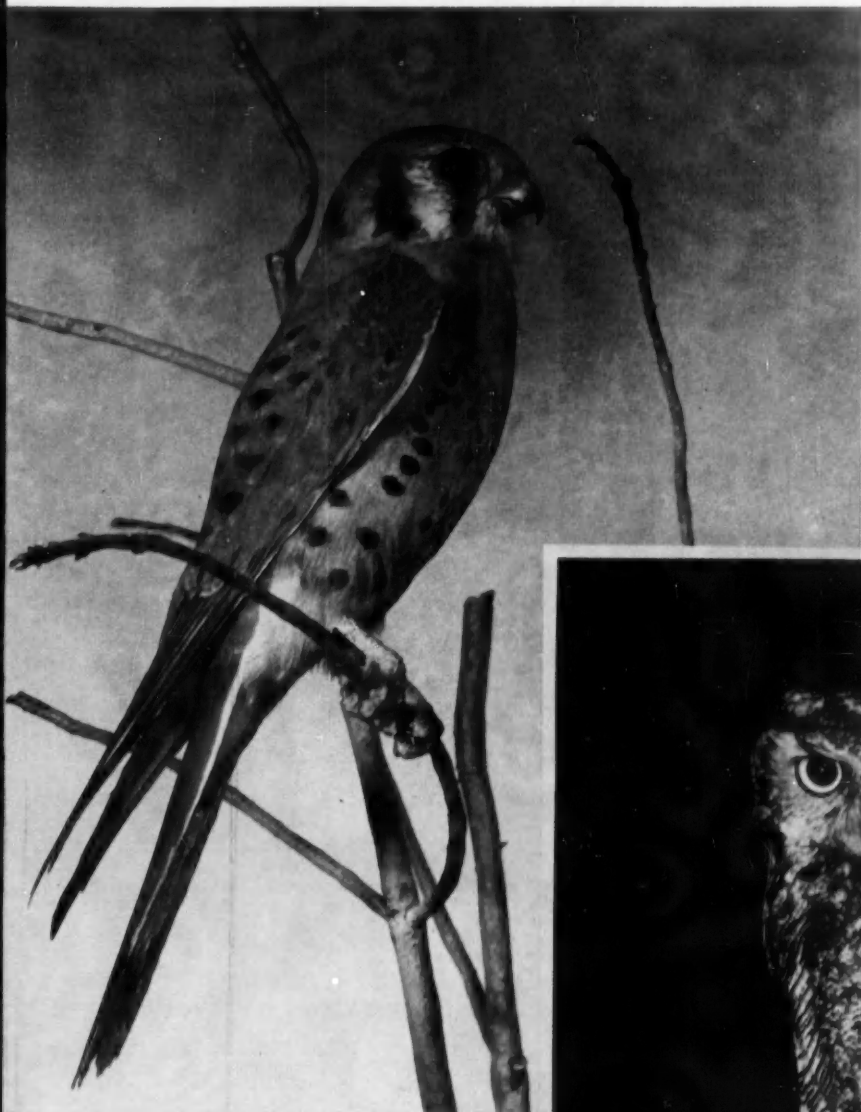
In addition to the select company dwelling in woodpecker-built bedrooms in green bores of the giant cactus, the noble Red-tailed Hawk constructs his bulky stick-nest in a crotch of its mighty arms.

Ruling the night watch, and proving himself an indispensable member of the rodent patrol, the Horned Owl similarly nests in huge saguaros. The tiger of the night appropriates old hawk and raven domiciles. Both hawk and owl are vital links in this delicately balanced and intricately interrelated life community. Their skillful work is

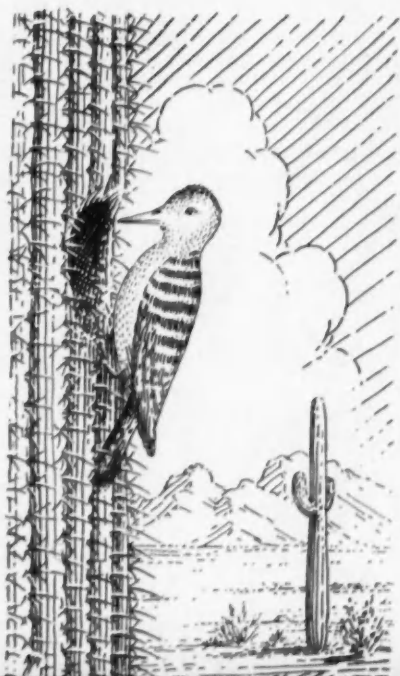
In Saguaroland, as elsewhere, Nature has her own way of keeping her world in balance. Here a varied number of birds have a happy relationship with the giant cacti, palo verdes and chollas whose dreaded enemies, the gnawing rodents and chewing insects, are held in check by the birds. In return for this life-saving favor, Saguaroland's vegetable kingdom provides protected nesting places for its winged friends.

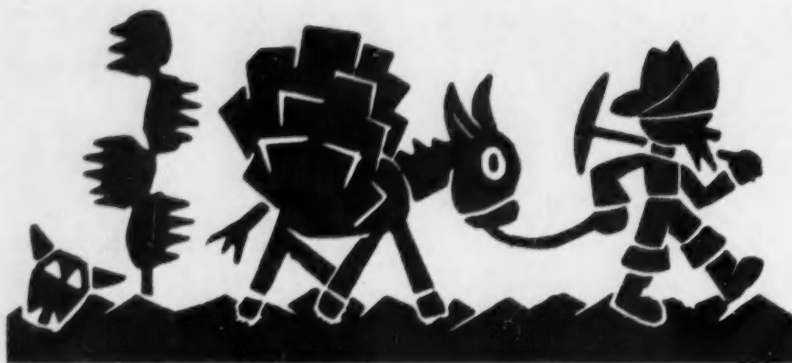
invaluable in keeping the giant cactus forest in prosperity and health.

Cactus wrens nest in shrub-level chollas of the cactus timberland. Mourning doves flock to its fruiting groves. Gambel Quail patter across pebbled pavements, and breed in the palo verde-cacti-mesquite of denser, undercover stands. Trilling Night-hawks sweep its evening air. While liquid Curve-billed Thrasher songs glorify the purple dusk of saguaroland.



Sparrow Hawk, left, preys on Saguaro-land's insects and small rodents. Horned Owl, below, also is a highly beneficial and valuable member of the giant cactus community. But for the expert work in rodent control of hawk, owl and desert fox, the saguaro forest itself could not survive — unchecked numbers of the gnawing fraternity would insure destruction of all giant cactus seedlings. Photographs by George M. Bradt. Drawing at lower left is of a Gila Woodpecker.





THE DESERT LAYS A GENTLE HAND

By MILDRED BREEDLOVE
Las Vegas, Nevada.

The desert lays a gentle hand
On those who know and understand
Its vast, uncharted wilderness,
When colors hold their rendezvous
On hills that only silence knew
And marked with ageless loveliness.

The softest pink and orchid tones
Play endlessly on barren stones
Where desert ranges meet the sky—
On mountainsides and plains below,
Where Joshuas and yuccas grow,
The shadows turn to indigo
As afternoon and evening die.

No land was ever quite so fair,
Or had a greater gift to share
In life's short interlude;
No heart could long remain unhealed
That wears the desert for a shield
And sees its loveliness revealed
In splendor, space and solitude.

DESERT SUNRISE

By NANCY LUCAS
Dugway, Utah

My heart cries out in longing
For a way I can unfold
The pageantry and beauty
In the sunrise I behold.

Tall mountains silhouetted
Against a rose-gold sky,
That echoes bits of color
Where blooming cacti lie.

The desert sands change color
In the early morning glow,
While a watchful, circling hawk
Casts his shadow far below.

Why should I strive so vainly
To portray this wondrous sight?
When God's silence is more eloquent
Than words I'll ever write.

THE MESA

By WHEELER FORD NEWMAN
San Pedro, California

Aloof it lies beneath the scourging sun;
Sheer-rising, its ramparts spurn the desert
floor,
Impassively watching dust-devils spin and
run,
Dissolving away, to form and spin once
more
Over outcrop and cacti and mesquite,
Down dry arroyo where the smoke trees
stand,
Dancing in crazy homage to the heat
Shimmering in waves across a passive land.
Aloof yet friendly the lonely mesa lies,
Waiting for stars to blossom one by one,
Waiting for dusk to soften tortured skies,
Waiting for peace that comes when day is
done.

TWILIGHT

By JOSEPHINE HENRY
Santa Ana, California

From the turquoise glow
Of twilight sky
My spirit finds rest
Not knowing why.
From the first faint star
Comes inner light
Saying in silence
There is no night.

PIONEERS

By LOUISA SPRENGER AMES
Indio, California

By the high road, by the low road,
And along the winding trail
They came in high adventure
With a faith that could not fail,

To the Valley of the sunrise,
To the land of dunes and sage,
To write a glorious chapter
On a new and glorious page.

They laced the sands with silver
And spread the rainbow there,
Till achievement crowned adventure
In the beauty that we share.

MIRAGE

By LOUISE WILMSHURST
Angels Camp, California

A solitary desert road
Stretched forth, without one tree
For respite from the blazing sun—
'Twas dull monotony.

When suddenly appeared a sight
Which took my breath away—
A boundless, tossing, sapphire sea,
Great rocks dashed with spray.

I stared with curious unbelief
Till, mystic as it came,
The phantom ocean vanished
And the desert was the same.

My heart was somehow gladdened
At the brief entrancing sight—
Elusive desert magic
To give my fancy flight.

Lo. the Pioneers

By TANYA SOUTH

The stars are gaining new proportion
As spheres, and by Supernal plan.
No longer are they a distortion,
Just to light up the night for man.

Oh, how abysmal, slow and dense
Has seemed man's progress through
the years!
Be kind to those who do advance.
Do gently by our pioneers.

The Desert Rat

By THELMA IRELAND
McGill, Nevada

He knows no world but desert sand,
Mesquite, sage brush and weather.
He's lived so long in it his face
And hands are tanned like leather.
He needs no culture, music, art;
His only lure is hope.
No television, radio—
Is he, or I, the dope?

THE DESPERATE LAND

By ALICE ERWIN
Choteau, Montana

There's a desperate land
Where the waves of sand
Roll out to the sea of sky,
Where the Navajo walked
And his war drums talked
In the years now long gone by. . .
For they made a stand
In this desperate land—
It was given them as their lot,
And they live and die
'Neath a tearless sky
In the land that God forgot.

Then I chanced to stray
At the close of day
In their world so mean and small—
In the shifting sand
Of this desperate land
Was the answer to it all,

For there I found
In the desert ground
An armlet of turquoise blue
Of a Navajo brave,
In a common grave
With a cavalry horse's shoe.

TO EACH HIS OWN

By GRACE BARKER WILSON
Kirtland, New Mexico

I love the friendly mountains,
They give me confidence;
But the wideness of the desert
Proclaims omnipotence.

INTO A DESERT PLACE

By LUCY JANE BULLOCK
Long Beach, California

Into a desert place my Master went
The day had been long, His strength was
spent.

Not to a garden fragrant and green,
But to a desert place swept fresh and clean
By winds let loose from the Hand of God,
To circle the earth or rattle a pod.

Out of a desert place my Master came
His eyes a light with an unquenchable flame.
Not for Himself He knelt alone
But for each questing soul He would atone
With power that flowed from the heart of
God.

To heal the sick or bring light to the clod.
Into a desert place I too would go
His strength to gain, His love to show.

RED ROCKS AT SUNSET

By KATHERINE L. RAMSDALL
Tempe, Arizona

This was not meant for me alone—
This flaming pageantry has burned
In other hearts and days than mine!
What traveler through sere desert wastes
Could pass this way, his soul unstirred
By such a rare design?

Rock-ribbed maidens, standing tall,
Skirts laced with juniper and pine,
Vermilion-tinted, flaunting light
As if to shame the sun. Your beauty
Haunts the hearts of men—
As it haunts mine tonight.



Paiute woman carrying a burden basket filled with pine cones.

MAGGIE WAS the first Indian I had ever known. I remember her in every detail—her merry giggle; her smiling dark eyes under a fringe of long, dark bangs; her parched, brown cheeks etched with the lines of laughter; thin, pale lips; a round, dusky face framed by a brilliant red scarf knotted under her chin; wearing a green and tan plaid woolen shawl on her straight, ample shoulders; and her worn black shoes barely visible below her full, gathered calico skirts. Sometimes she wore several skirts to ward off the cold.

It was many years ago when we met. I was a small child then and had recently come with my family to a desert homestead claim only a mile from the Paiute Indian Reservation east of Fallon, Nevada.

We children were filled with stories of Indian scalplings and war raids, of kidnapped white children raised among them. We were not anxious to meet any of our new neighbors.

I remember a warm, clear evening shortly after we had moved to the homestead. Spring was all about us.

LIFE ON THE DESERT

I Remember Maggie

Woven into the happy memories of her childhood on a Nevada homestead are Ruby Robison's recollections of Maggie, the likeable, hardworking Paiute woman who came each Monday to do the family wash . . .

By RUBY ROBISON

The old cottonwood tree in the backyard was bursting into leaf and the odor of sage was in the air. Dad had been away all day helping a neighbor put down a well and had not as yet returned. We were sitting around the supper table chattering about the day's happenings when we were interrupted by a sharp tapping on a windowpane.

There, framed in the window, was the wrinkled brown face, scraggly black hair and shining black eyes of an Indian. His brown lips were mumbling, "Gimme wisket! Gimme wisket! You no savy white man wisket?"

We sat petrified. No one moved or made a sound.

"Gimme wisket! Gimme wisket!" the deep voice demanded. Then he pointed to his lips and feigned the chewing of a mouthful of food.

Suddenly Mother understood. Catching up a pitcher of milk and a pan of warm biscuits she raised the window and shoved the food into the brown hands waiting there so eagerly. We watched him carry it to a rickety spring wagon atop which an Indian woman squatted cross-legged. Both ate greedily.

Then he came to the window again and handed Mother the empty pan and pitcher. "Heap good wiskets," he mumbled. "Me like 'um white man wisket pretty good. Bye-m-bye Monday come. You pay 'em one dollar. My squaw Maggie come wash 'em clothes. Huh?"

And that is how Maggie came into our lives.

Early each Monday morning she and her man, Dick, would arrive in their old spring wagon drawn by a starved gray horse. Dick proudly rode on the high seat, but Maggie always squatted on a soft rabbit skin blanket on the wagon bed.

Their first order of business was to devour huge breakfasts and then Maggie boiled and scrubbed the dirt out of our clothing. Water was heated in our backyard in a huge black tub resting on a grate over a small open fire. By mid-morning line after line of snowy clean clothes flapped in the desert breeze.

While Maggie's brightly kerchiefed

head steadily bobbed up and down over the old washboard set in the tub of hot suds, Dick dozed in the shade, his hat covering his eyes. He only stirred long enough to eat another huge meal at noon after which he chatted with Maggie in their native tongue. All leftovers were carefully tied in a bundle and taken home for another meal.

No matter how large, how small or how soiled the clothes were, the washing for the week always cost one dollar. This Maggie carefully placed in a small black purse she carried in a huge pocket in the first layer of her voluminous calico skirts.

Dick was a lazy fellow. Ambition never bothered him. He liked to sleep in the shade. He wore odd combinations of clothes—usually cast-offs from neighboring white families. His black hair was shoulder length and he always wore a battered, broad-brimmed, high-crowned black hat. A colorful silk kerchief knotted about his neck added a gay note to his costume. Dick prized these kerchiefs and took great pride in the shining folds of heavy silk.

We laughed at our early fear of Indians. These people we called "tame Indians" while those fearful legendary creatures we referred to as "wild Indians."

Sometimes Maggie's sister Minnie came to help with the washing. She brought her little brown papoose laced tightly in a buckskin cradleboard that was intricately beaded in beautiful bright floral designs. Maggie told me the bead designs on the cradleboard were more elaborate for girl babies than for boys. A woven hood of peeled willow shaded the baby's eyes from the glaring sun and a strap of red beadwork fitting snugly about Minnie's forehead held the cradleboard firmly on her back. While she worked Minnie propped the cradleboard against a tree or hung it from a lower limb where it was gently rocked by the breeze. The little papoose slept most of the time. She seldom cried when awake, but gazed about with tiny black eyes. Sometimes I got her to smile and gurgle for me.

In the summer when we children were home on wash day, we trudged

barefooted up and down the hot irrigation ditch banks hunting fresh ground squirrel holes. We poured water down them and drowned out the animals. These we gave to Maggie and Dick who tied them in their food bundle and took them home. Maggie said that boiled in a stew or broiled over open coals they were "heap good." I was content to take her word for it.

Maggie also made pine nut soup. Each fall when the first frost opened the cones on the pinyon trees, she and her tribesmen camped out for weeks in the mountains gathering the winter's supply of nuts. The men shook them from the trees with long poles and the women and children followed along gathering them in large burden baskets.

This was a joyous time with work in the daytime and dancing and feasting at night.

Maggie roasted the cones in the hot earth over night, being careful that the hot coals of the fire never touched them. This opened the cones and

loosened the nuts. Then they were deftly tossed in a flat woven willow winnowing basket to separate the pine nuts from the cones.

Maggie ground the fresh meats on a metate. This meal was cooked in a watertight basket by placing pre-heated stones in the vessel. In addition, bread and many other foods were made from the pine nuts.

Maggie skillfully wove beautiful baskets embellished with traditional designs and symbols. Her long slender fingers twisted and stitched the specially prepared willow shoots artistically into baskets for cooking, winnowing, burden bearing, storage, ceremonial use and even for playthings for the little papoose.

A few years after regularly coming to our ranch, Maggie suddenly was absent. Fearing something might be wrong, we hitched old Brownie to the buggy and drove to her shack only to find it burned to the ground.

We drove on to Minnie's cabin and

long before we drew in sight of it we heard loud wailing, moaning and weeping sounds coming from it. We had become quite familiar with the blood-chilling Indian death wail by this time. We found Maggie and all she could tell us was that, "Paiut-ie man kill 'em Dick." We never learned the particulars.

Maggie's house had been burned to frighten away the evil spirits and she had gone to live with her sister. Her mournful chanting was not so much in sadness for Dick as it was to keep the evil spirits from following her to her new home.

Soon after our visit Maggie returned to our homestead each Monday. Then one morning she arrived in a double-seated buggy drawn by two bony brown horses. A stern-faced brave held the reins.

We teased Maggie about her new boy friend and she giggled and said, "Me ketch 'em new man." Bob Austin was his name and he also enjoyed sleeping all day.

Maggie was always broke. She worked hard for us and for other white families in the area but her weakness was the Indian stick game and other games of chance. When we asked her where her money went, she would laugh and say, "Me play 'em. Me loose 'em." Easy going and happy—that was Maggie.

She told us many Indian tales. One I remember particularly well. It was about her people many years ago. They were camped on the shores of the Carson Sink and nearly dead from hunger. The braves had been too busy making war on neighboring tribes to hunt.

Then a flock of great white swan came flying high overhead. So large was this flock that it hid the sun.

Circling lower and lower, multitudes of the graceful white birds alighted in the lake near the Paiute camp. Hunters soon killed great numbers of them and a great feast was prepared.

Messengers were sent to the neighboring tribes, inviting them to join in. All came and after the feast a great peace dance was held. Everyone sang and was happy. The war hatchet was buried.

The white feather of the swan became the symbol of peace and prosperity between the tribes. Warring ceased, famine never returned and peace reigned over the land.

Yes, I remember Maggie—but she is no more. She belonged to a generation when the legend of the Great White Swan was fresh and new. But, its prophecy is still with us. The passing years have brought peace and prosperity to the wide, fertile Lahontan Valley where once the Paiute Indian roamed—wild and hungry.

Hard Rock Shorty of Death Valley



Hard Rock Shorty was in a reminiscent mood. He had just gotten the returns on a carload of ore he and Pisgah Bill had shipped to the smelter—and the ore was richer than they had figured, so they came down from their camp on Eight Ball Creek to spend a few days loafing around the Inferno store watching the dudes come and go.

A bus load of them had just stopped for cold drinks, and were sitting on the leanto porch sipping their soda pop. Hard Rock's feelings about dudes were a mixture of scorn and curiosity.

"What do we do for a livin' up here?" he repeated a question asked by one of the visitors.

"We work, same as honest folks do everywhere, except a little harder. Pisgah Bill breaks down the ore in the tunnel, and I push the ore cart outside and sack it up. Cain't afford to hire no help, an' we don't need any. Bill's the best drill an' powder man this side o' Cripple Creek, and I can handle more ore'n three mules.

"Once we tried hirin' a mucker to do some of the heavy work. Name was Packrat Pete, an' he

wuz no good minin' so we put him cookin'. He wuz so lazy he'd put popcorn in the flapjacks so they'd flop themselves over.

"He was always tryin' some way to keep from workin', an' that wuz how he got his name. He carried a box o' pack rats around with him from one job to the next. He'd taught 'em the difference between ordinary rocks an' gold nuggets an' they would raid the cabins where the miners'd cached their gold and leave 'em rocks instead. Pete got the gold, the miners got the rocks.

"Come December and Pisgah and me decided to spend the month prospectin' over in the Argus range. While we wuz away Pete taught them packrats to bring beans in from the store room so all he'd have to do wuz sit by the stove and cook 'em.

"But them rats didn't know everything. One day they got into a bag o' poisoned beans Bill'd got from the mail order house to kill the varmints that wuz gittin' his chickens. An' them packrats put them pizen beans in Pete's cookin' kettle.

"An' when we got back we buried ol' Pete with his boots on."

HOME ON THE DESERT

Plans and Plantings in October for Lovely Flowers in Spring . . .

Other people in other climes may sit back when October comes to enjoy the traditional fall harvest season—but, not the home-on-the-desert gardener. She knows it is time to plan and plant that spring garden, for April's magic flower carpets are sown in October.

By RUTH REYNOLDS

NOWHERE IS October's bright blue weather brighter or bluer than on the desert. And at no other time do the desert's immensities—the vast skies, the hills and horizons—more brightly and bluely encompass the home on the desert. And if one day the wind should change suddenly, blowing away the heat of summer and ushering in a breath of autumn, how exuberantly the gardener will go to work!

Traditionally October is a time of harvest and even the desert garden may yield some fruits but here tradition is reversed: this is a time for planting. And the desert gardener cannot wait for or depend upon any exciting change in the weather. The calendar says it is time to plan and plant for spring—the one season when the desert garden's flowering potential is almost unlimited.

This year I have resolved to put more emphasis on planning and less on planting, or rather transplanting, which last year almost proved my undoing.

With Pete, an able and industrious university sophomore, to help me, I got off to a fine start—laying off a bed, planting bulbs—narcissus and ranunculus—and annuals including stocks, snapdragons, larkspur, calendulas, candytuft, poppies—and more poppies.

The soil was well prepared, spaded deeply and enriched with well composted manure, except where the narcissus bulbs went. In their square-yard bed, I worked in a scant quarter pound of bonemeal and was rewarded with all the lovely and fragrant blooms I could hope for. The ranunculus performed normally—which is more than adequate reward. The annuals came up so thickly that there was room for only about a tenth of them in their bed. This was normal too, of course, and if there had been less unused space in

the garden plot I should not have transplanted lavishly as I thinned. But this I did, setting out plants rather haphazardly and mulching them with peat moss.

The results were a lot of flowers which took more time and work than I counted on, and a few lessons learned by experience, which I shall enumerate for what they may be worth.

All of these plants transplant easily, even poppies, dozens of which I pulled up by the roots when the ground was soaked. They all can stand freezing a few times, especially if you rush out and spray them with water before the sun thaws them. All benefit by monthly light feedings of ammonium phosphate worked lightly into the soil around them.

And one thing more: you can have too many flowers. Mine bloomed so profusely in April that it was almost a full time job keeping the withered blooms snipped off. This applies especially to calendulas as they begin to fade the second day and remain on the stems untidily. Poppy petals never wither on the stem. They are off and away with the wind, to be replaced by fresh blooms daily for several weeks.

Candytuft-gone-to-seed is almost as pretty as in bloom. The flower shape is retained and turns from green to brown after the petals fall. From start to finish this flower is precious. With its small, lacy flower heads—white, lavender, purple—it is as lovely as baby's breath for mixing with bouquets and is often used by florists in the same way. Every garden should have it in abundance, but not as a low border plant. Mine, planted as such, grew 18 inches tall.

But I was saying that you can have too many flowers. Now, as Ted would remind me, I seem to contradict myself. And so I am, for from either viewpoint flowers are rewarding, but

when limiting factors ban large scale growing, a few flowers may afford as much pleasure as many.

This was impressed upon me by Nora, my next door neighbor, who at 77 took up desert gardening last year by planting a single, small bed of African daisies. During their blooming season she was up with the sun each morning to watch them open and out each evening to see their petals close. Just sharing her joy in them was a pleasant experience for me. But sharing is always part of the fun of gardening—and a means of learning, too.

From various gardens shared with me last spring I not only borrowed pleasure but a number of interesting ideas.

Nierembergia Purple Robe makes a striking border for a bed of white or pastel flowers such as Iceland poppies. Purple Robe is an improved variety with rich, deep violet-blue blossoms massed compactly on low growing—about 10 inch high—plants. Grown from seed or nursery plants it will bloom in the spring and may continue as a perennial.

Another attractive edging plant for a flower bed is parsley. Its green frills go well with all colors. It may be used alone or interspersed with other edging plants such as the Sweet Alyssums. Best low spreading alyssums are Royal Purple Carpet and the all-America award winner, Carpet of Snow. These are improved varieties, fragrant and densely flowered. Plants spaced four inches apart will form a ribbon of bloom where one is desired.

A bed of pansies alone may contain enough beauty for a springtime, if you like pansies. Belonging generically to the violas, pansies are old favorites bred to modern perfection.

Among the viola tricolors are the Swiss Giants with slightly ruffled, three-inch flowers that come in a wide range of colors including red, salmon, pink, wine red, blue and rose. Coronation Gold, an All-America silver award winner, is canary yellow with lower petals of orange.

Pansies need a rich, well drained soil and plenty of sun, though a little shade

is permissible. At this time of year seeds may be sown—if very carefully sown—in the garden. Later pansies are best grown from nursery plants.

Sweet peas have joined the ranks of the multifloras—having as many as five or six blooms to a stem. There are Giants and Giant Ruffled; there are early flowering varieties for winter bloom and heat resistant varieties for later spring bloom. You have only to make a choice according to your needs—and plant them.

A south exposure is best. Even there they may freeze at Tucson's 2400 foot altitude, unless protected. They often do freeze here but recover to bloom beautifully, though late.

Directions for planting sweet peas always call for a three or four inch trench and one is necessary. However in the desert garden it should be a trench within a twelve inch trench of well enriched garden soil. I never plant anything in the bottom of a trench—always a little way up on the side, so that heavy irrigation does not wash away the seeds or cover the sprouting plants with water. This ap-

plies to all seeds and bedding plants planted in rows.

While fall planting is going on—perhaps on and on, as the list of things to plant is almost endless, there are, as I mentioned in the beginning, fruits to be harvested in October.

Those I had in mind were the pomegranate and the olive. It well may be that the olive is the fruit that does best on the desert where it is becoming increasingly popular and where home harvesting and processing of olives is becoming popular.

The processing method generally used is one evolved by Dr. Robert H. Forbes, Dean Emeritus of the College of Agriculture, University of Arizona. A condensed version of it follows.

Pick the fruit when it begins to color but is still firm. Avoid bruising. Wash and pack lightly in wide-mouth jars; fill the jars not more than two thirds full in order to permit the addition of a lye solution made by dissolving 3 tablespoonfuls of a good commercial lye in a gallon of water; pour this over the fruit in the containers; cover lightly with a cloth or lid not

screwed down.

Olives should remain in the lye bath from three to five days or until all bitterness is removed. To test, an olive may be washed, sliced to the pit and tasted. When the fruit is free from bitterness the lye bath is terminated and the fruit must be washed daily in changes of clean water over a period of a week to remove all trace of lye. To test for lye lay a piece of litmus paper (red) on the cut surface of an olive. If it turns blue, lye is still present and washing should continue.

When free from lye the fruit is ready for brining or pickling which is done in three steps: (1) Make a solution of four ounces, by weight, of salt to one gallon of water. Let fruit stand three days in this first brine in a cool place, or refrigerate, to prevent fermentation. (2) Remove fruit to a second brine—8 ounces of salt to a gallon of water. Weigh olives down to prevent floating and let stand five or six days. (3) Remove fruit to a final brine made of 14 ounces of salt to a gallon of water. Store the olives in this, in cold storage preferably. Freshen olives in cold water for 24 hours before serving.

Utilizing pomegranates is as simple as olive processing is complicated. You can make pomegranate jelly, using juice obtained by cooking the seeds in as little water as possible. You can sprinkle the shining red seeds over fruit salads for flavor and sparkle, use the fruit for table decoration. I keep some in the refrigerator for the Thanksgiving table. But I like to leave it as long as possible on the bush in the garden where I enjoy it most.

Cash for Desert Photographs . . .

With summer behind us and winter ahead, autumn is an interim for high adventure in the great outdoors. Many of the Southwestern communities stage rodeos, fairs and celebrations besides the desert-land's homecoming party for those who love to tramp over its mountains, camp in its canyons and wonder at its never-ending parade of life and death.

Of course a camera is standard equipment on such trips, and if you are a photographer—amateur or professional—you should enter the best of these desert shots in the Picture-of-the-Month contest. Two cash prizes are given to winners.

Entries for the October contest must be sent to the Desert Magazine office, Palm Desert, California, and postmarked not later than October 18. Winning prints will appear in the December issue. Pictures which arrive too late for one contest are held over for the next month. First prize is \$10; second prize \$5. For non-winning pictures accepted for publication \$3 each will be paid.

HERE ARE THE RULES

- 1—Prints for monthly contests must be black and white, 5x7 or larger, printed on glossy paper.
- 2—Each photograph submitted should be fully labeled as to subject, time and place. Also technical data: camera, shutter speed, hour of day, etc.
- 3—PRINTS WILL BE RETURNED WHEN RETURN POSTAGE IS ENCLOSED.
- 4—All entries must be in the Desert Magazine office by the 20th of the contest month.
- 5—Contests are open to both amateur and professional photographers. Desert Magazine requires first publication rights only of prize winning pictures.
- 6—Time and place of photograph are immaterial, except that it must be from the desert Southwest.
- 7—Judges will be selected from Desert's editorial staff, and awards will be made immediately after the close of the contest each month.

Address All Entries to Photo Editor

The Desert Magazine

PALM DESERT, CALIFORNIA

TRUE OR FALSE ANSWERS

Questions are on page 22

- 1—False. A new button appears every time the snake sheds its skin and that may happen two or three times a year.
- 2—True. 3—True.
- 4—False. They are rare, but occasionally a creamy white Ocotillo is found on the desert.
- 5—False. They grow on Pinyon trees.
- 6—True.
- 7—False. Roosevelt Dam is in the Salt River.
- 8—True. 9—True.
- 10—False. Juniper foliage is always green.
- 11—False. The Gadsden Purchase was from Mexico.
- 12—True. 13—True.
- 14—False. Winnemucca was a Paiute chief.
- 15—True. 16—True. 17—True.
- 18—False. Ajo is a copper mining town.
- 19—False. Asbestos is a mineral.
- 20—False. Furnace Creek Inn is in Death Valley.

LETTERS

Crossing of the Padres . . .

Cannonville, Utah
Desert:

I have just finished reading the August, 1956, *Desert* editorial and I am boiling all over inside. Editor Henderson makes the following statement: "Incidentally, it was Kelly with Dr. Russell G. Frazier and Byron Davies who re-discovered those stone steps (the crossing of the Fathers on the Colorado River) in 1937."

How can you rediscover something in 1937 which has not been lost since the late 1850s?

If you check the history of the Mormon missionaries to the Indians you will find that many of them used the crossing in the late 50s or early 60s on their trips to and from the Utes, Hopis and Navajos, east and south of the river. Then too, at this time, Mormon stockmen brought their cattle and horses into the range area on the north and west side of the river. They have been in this area ever since and still are there. Dozens of cowmen have known of and seen and been up and down some of these steps (there are at least three sets) since the 1860s.

In 1887 my father and brothers brought their cattle into this and nearby ranges. As a 10 year old boy in 1897 I began riding with my father and others in this vicinity and have personal knowledge of the location of the crossing and of the approach to it.

I believe it was in May of 1937 that the late Thomas W. Smith, then of Henrieville, Utah, as chief guide, and W. K. Clark of Cannonville, Utah, as horse wrangler and packer, first took Byron Davies to the crossing. This was Davies' first trip there and later, in the company of his brother, Ammon, took Dr. Frazier there.

At this same time, T. W. Smith, his late son Clark Smith and Clark were employed on a similar expedition by Dr. W. P. Tompkins of San Francisco, who was on a sight-seeing and picture-taking trip.

On one of these trips, Clark picked up several lead slugs at the base of one set of steps. The Smithsonian Institution was unable to identify or classify these bullets which supposedly were fired from some undetermined type of cap and ball pistol during one of the river skirmishes between the early stockmen and the marauding Indians.

Among the early Mormon missionaries to use the crossing were such men

as Jacob Hamblin, Thales Haskell, Ira Watch and others. These men and others used this trail many times and I repeat my question: how can a trail or set of stone steps be re-discovered in 1937 which were not lost by the whites since the 1860s and by the Indians since the crossing of Father Escalante and possibly for a long time before that?

WILFORD CLARK

Dear Mr. Clark—As you probably know, Escalante's crossing was in dispute for a great many years prior to 1937. Historians knew that the crossing site accepted by most map-makers was erroneous for it was not substantiated by Escalante's exacting diary. The expedition into this country that Dr. Frazier headed and of which Kelly was a member, was by no means the first to reach the Padre's crossing, but it generally is regarded as the first to give the world an authoritative, exact and undisputable location of the ancient steps cut in 1776 by the Escalante party. We carried Dr. Frazier's discovery story in our July, 1940, issue.

—R.H.

Regarding Olive Trees . . .

Richfield, Utah
Desert:

In the August issue of your magazine Roy M. Youngman writes regarding the mess of ripe olives falling on the ground where Olive trees are grown for shade.

The Arizona State College at Tempe handles this situation by spraying the trees, when in full bloom, with a chemical that does not change the appearance of the tree but prevents any setting of fruit.

By writing to the head groundkeeper of the College, I think full information about this chemical and how to use it can be secured.

H. W. GORE
District Agric. Inspector
State of Utah

Twentynine Palms, California
Desert:

Ruth Reynolds should not be discouraged by the letter in your August issue attacking her stand on olive trees.

To me the olive is still unsurpassed for beauty and not nearly as messy as many other trees. Of course living inside any orchard as the letter-writer did has its drawbacks!

I have heard that ornamental olive tree growers have produced a tree that bears fruit sparingly.

HARRY W. JONES



Baldwin's Crossing

Baldwin's Crossing Reversed . . .

Lancaster, California
Desert:

Enclosed is a photograph I recently made at Baldwin's Crossing near Sedona, Arizona. I believe your July cover of this same scene is reversed.

Sedona is my favorite summer vacation area and the crossing is a must each time I return there. The rock formation above it is known as "Court House Rocks."

MARIE A. MCGUIRE

Our apologies to the Sendonans for the switch.

Wheeler Peak's Glacier . . .

Tucson, Arizona
Desert:

Received my August *Desert* today and feel you did a mighty fine job of presenting the subject of the proposed park or monument in the Wheeler Peak area—and Norton Allen made a fine map from my rough one. I think this will help the cause along greatly.

There's one thing though that seems to be misunderstood. The glacier was not "re-discovered" in 1955, it was discovered. Although Eimbeck saw ice at the head of the cirque in 1883, he neither reported it as an active glacier nor suspected it was one. The reason is rather easy to explain. He did not see into the bottom of the cirque, where the glacier lies, and it is probable he would not have realized that the ice was active because it was covered with too much snow.

The ice Eimbeck saw and reported, and pictured in his engraving, is the neve tongue on the cliffs above the glacier. Many must have seen this upper ice but no one suspected that an active glacier lay in the hidden cirque beneath. We wouldn't have either except that I especially chose September of one of the driest years on record, when all the usual snow

had melted away and left the naked ice beneath.

Old-timers tell me that a glacier has been supposed to exist on Wheeler Peak for years. However, it apparently was not this one but an icefield in Wheeler Peak's south cirque. We saw this too, but it is now greatly shrunken and definitely not active.

So, inasmuch as no one knew or suspected that a glacier existed in Wheeler Peak's north cirque until 1955, I feel that it was definitely discovered then, and that we discovered it, not Eimbeck. However, it was his tip that made me scout for the ice — but I never had any idea I'd find an active glacier.

WELDON F. HEALD

Who Were the McKellipses? . . .

Cucamonga, California

Desert:

I would like help from your readers on a question left unanswered on a recent trip we took through Death Valley.

In the pass east of Lone Pine on Highway 190 we saw a cross on the mountain which we stopped to investigate. Instead of one grave marker we found two. The graves were very well kept and bore the markings:

Loranzo McKellips
1874-1876

Larkin McKellips
Died in Infancy 1876

Who were these children? Who is maintaining their lonely graves?

E. L. WILSON
Post Office Box 508

Plea for Human Captives . . .

Gary, Indiana

Desert:

In the August issue Mrs. Roberts indignantly protests against the captivity of a fox which she had observed at a desert settlement "... it was obviously miserable ... others regarded the disgusting treatment ... as sickening."

To be sensitive to inhumane treatment of animals is a commendable virtue. I applaud every objection you and Mrs. Roberts have made. And this further observation has no reference to you whatsoever but to those persons who have great sensitivity only to animals and none to human beings:

It frightens one not a little to find a captive coyote or trapped bear the object of more anguish than the mass herding of countless thousands of America's first citizens and proud owners of the land, to captive reservations—to land the white man deemed valueless. Little water, little shade, little food.

Let our national conscience be stirred over the injustices toward our Indian

Americans against whom we have acted so unjustly. They are a worthy, competent people, greatly dispossessed and from whom we have appropriated much for our growth in culture and material success.

R. E. OLSON

"Lake Escalante" Support . . .

Kingman, Arizona

Desert:

I was glad to note that you support the name "Lake Escalante" for the Glen Canyon Dam's reservoir (August, '56, p42).



Howard D. Clark, a "fugitive from the big city" has lived on the desert 10 years and his story in this month's issue, "Desert Christ Park—A Shrine to Brotherhood," is from his home town of Yucca Valley, California.

Clark came to California from Chicago during the last war after a number of years in the mid-west in business and editorial work for magazine and book publishing houses and as a publicity staff writer and photographer. Following employment as a photographer in Hollywood, he moved to the desert where his most active interests are in rocks, minerals, prospecting, mining, lost mines and Western lore. He is the author of a book of 21 stories entitled, "Lost Mines of the Old West."

Ruby Robison has lived in the Fallon, Nevada, area since very early childhood and it is from her experiences there that she has drawn material for her story in this month's issue, "I Remember Maggie."

Mrs. Robison is married, has two children and "now that my family is growing up I have more time to write—which I enjoy very much." She is a member of the local Sagebrush Scribblers, a group from which she has derived much pleasure and writing help, she reports.

Journalist - Adventurer - Engineer Donald Page, author of "Lost Jesuit Mine with the Iron Door" in this month's magazine, has lived an eventful life—from his boyhood days in Mexico; through the Yaqui Indian uprisings of 1910, which he covered for A.P.; the 1910 Madero Revolution, which he participated in; and the 1915 invasion of Sonora by Pancho Villa. In the meantime he became an intimate friend of such border characters as Dr. George Goodfellow, Billy Break-

Several months ago I wrote to Senator Carl Hayden of Arizona urging the same name for the lake and he answered that when the time comes to choose a name, Escalante will be considered. Prior to the last war, several road maps listed this area as the proposed "Escalante National Monument."

May I suggest you and your readers support the name of another great pioneer, Brigham Young, for the lake to be formed behind the Flaming Gorge Dam.

JOHN FREDERICK MacPHERSON

enridge, Capt. Lee Hall, General Luis Torres and Col. Emilio Kosterlitzky—and found time to go to Central America in 1912 where he "built a railway, found what is now believed to have been the wreck of a Spanish treasure galleon, and became involved in two revolutions." In 1917-18 he served as a lieutenant in the combat engineers. After more adventures in Europe and the Americas, Page became acting Pima County engineer and deputy building inspector for the city of Tucson, Arizona.

COLORADO RIVER LANDS RESTORED TO PUBLIC ENTRY

Department of Interior officials announced that 230,000 acres of public domain along the California side of the Colorado River in eastern San Bernardino, Riverside and Imperial counties has been restored to possible public entry.

The land had been reserved for 26 years for possible use in connection with the Colorado River and Yuma reclamation projects, but now has been declared surplus to project needs.

The restored lands are steep, rugged and without value for farming except for certain areas in Palo Verde Valley and Palo Verde Mesa. None of the lands are timbered, but portions may be valuable for manganese, gold and silver mining.

The public lands will be open to mining location November 17 and inquiries or applications should be sent to the Manager, Land Office, Bureau of Land Management, Los Angeles, California.

About 22,500 acres of privately owned lands are intermingled with the restored lands and prospectors were reminded that they have no trespass rights of mineral exploration without permission of the owners. The Department also pointed out that while lands may be entered for mineral exploration, they may not otherwise be occupied until the Bureau of Land Management technicians have classified them as suitable for the intended use of an applicant.—*Indio Date Palm*

Here and There on the Desert . . .

ARIZONA

Peyote Ban Contested . . .

FLAGSTAFF — A predominantly Indian church has contested a regulation of the Navajo Indian Tribal Council forbidding the use of peyote on the reservation. Suit has been filed by the Native American Church, Inc., which asserts the tribe's ordinance violates the constitutional right of freedom of religion. The church claims Indians have used peyote as a sacrament for hundreds of years and that it is harmless and nonhabit-forming. The tribal regulation holds peyote a stimulant, to be intoxicating and habit-forming. It also is banned by Arizona state law. —Phoenix Gazette

City Given Steam Engine . . .

CHANDLER — After 50 years of faithful service, one of the Southern Pacific Railroad's early steam engines has been placed on a large cement slab in the Chandler City Park. The engine will stand as a monument to the first locomotive power used in bringing freight to the Chandler area and ably serving in the growth of the community.

It will be a playground for children who will be allowed to climb in and out of the cab. —Chandler Arizonan

Antelope Herds Decline . . .

PHOENIX — Arizona's antelope herds have lost ground during the past year, but some decrease had been expected and game department officials are not alarmed. Only two areas produced a normal fawn crop and there was evidence that the antelope herds have scattered and shifted, making it difficult to get a sound comparison with the findings of last summer's survey. —Phoenix Gazette

Small-Tract Land Opened . . .

CAVECREEK — A small-tract federal land opening for two-and-a-half to five acre residential sites two-and-a-half miles south of Cavecreek was announced by the U. S. Bureau of Land Management. The sites are offered on the usual three-year lease-option to purchase terms at \$250 to \$500 per tract, depending upon location and size. —Phoenix Gazette

Indians Seek Big Vote . . .

SAN CARLOS — Clarence Wesley, San Carlos Apache Indian tribe member and chairman of the Arizona Intertribal Council is spearheading a drive to get more of his fellow Americans to vote this fall. Posters stressing the importance of voting and literature on how to go about it have been distributed to the various state tribes. In addition, Wesley has urged leaders of each tribe to join him in the project. He figures there still are 44,000 Indians in Arizona who could qualify to vote if they would only take an interest. —Yuma Sun

Hopi Urge JP Court . . .

HOLBROOK — The Navajo County Board of Supervisors has received a request from the Hopi Tribal Council for the creation of a justice of the peace district at Keams Canyon. The Hopi complained that white residents and visitors are violating not only reservation regulations but also state and federal laws and the Indian courts lack jurisdiction. At present, justice court cases originating in the affected area are handled in Winslow or Holbrook. Federal cases are tried in Holbrook. The affected area has about 20,000 residents, mostly Indians. —Phoenix Gazette

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Dear Mr. Bernard:

This will introduce Dr. E. E. Nishibori, who is the logistics-operations leader for the 1956-57 Japanese Antarctic Expedition. I believe you will find what he has to say quite interesting.

Dr. Nishibori is in the United States to obtain technical advice and help for Japan's project. One of his problems concerns expedition packaged foods for use at the South Pole. I suggested that he

speak to you concerning Kamp-Pack foods. His requirements may be for camp foods of a different type, since the Japanese diet is different from the American, but there are certain basic food requirements which are the same for any expedition. And your Kamp-Pack products are the best I've ever encountered.

Please listen to his problems and offer whatever advice you can. Anything that you can do for him will go a long way toward furthering the over-all co-operative effort on the Antarctic Continent.

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Theodore F. Bank II
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Land Petitions Killed . . .

WASHINGTON, D. C. — The Interior Department has thrown out 626 desert land applications involving about 200,000 acres in Arizona because of lack of an approved water source. Declared Assistant Secretary Wesley A. d'Ewart: "further adjudication could lead to no other decision unless either the Arizona water law is changed or desert land applicants in Arizona find other assured sources of supply for the necessary irrigation." Percolating water does not comply with legal irrigation requirements and any appeal is blocked by the department's action, d'Ewart said. Each of the applications involved 320 acres, and all were based on percolating water as the source of irrigation supply.—*Phoenix Gazette*

Javelinas Released . . .

WICKENBURG — Seventeen javelinas have been released along the Haysayampa River north of Wickenburg in an attempt to establish the animals in the area. They were trapped and tagged during studies made on the javelina by the University of Arizona field unit near Tucson. The state reported that the javelina has become the most popular game animal with non-resident hunters, and the number of javelina permits issued by the Game and Fish Department has nearly doubled since 1949.—*Wickenburg Sun*

CALIFORNIA

Mesa to Get Water . . .

BLYTHE — The 1956 Small Reclamation Projects Act, signed into law by the president, assures the bringing of water to 16,000 acres of mesa land five miles west of Blythe. L. S. Shipley, secretary of Palo Verde Irrigation District, which will furnish the water, said the \$3,500,000 project first approved four years ago now is certain. The Department of Interior already has declared the project feasible and the irrigation district expects it to have first priority. About 500 acres on the mesa now are irrigated by wells.—*Los Angeles Times*

Salton Park Extension . . .

SALTON SEA — A total Salton Sea State Park shore frontage of 17 miles is being sought by the Division of Beaches and Parks. The Division said it planned to ask the State Public Works Board for funds to buy private land around the sea and south of the present park. The state has been negotiating with the government agencies including the reclamation and public lands bureau for outright acquisition of government lands. The purchases would be of private lands on the sea in Imperial and Riverside counties.—*Indio Date Palm*

Glamis Road Approved . . .

WASHINGTON, D. C.—President Eisenhower signed into law the omnibus military construction bill which contains a \$660,000 appropriation to help build the Glamis to Blythe road. It will probably be 1960, however, before all segments of the new route between the Imperial and Palo Verde valleys are improved and the road completed, it was estimated. The need for a new road came when the Navy closed the Niland-Blythe road across the aerial gunnery range in the Chocolate Mountains. The government appropriation is for construction of a connecting road across the sand hills between Brawley and Glamis and the 41-mile stretch of unimproved dirt road between Glamis and Palo Verde will have to be brought up to standard by Imperial County before the entire route will be useful.—*Palo Verde Valley Times*

Land for New Park . . .

LANCASTER — California State Department of Beaches and Parks has ordered the immediate acquisition of 4160 acres of land encompassing the Saddleback Buttes area, for park development. According to Mrs. Jane Pinheiro, chairman of a local committee which has been working for the past two years to bring a state park to the Antelope Valley, 610 acres of the land is owned by the Bureau of Land Management and the remainder is under private ownership including a few jackrabbit homesteaders and some mineral claims. The area which has a good stand of Joshua trees, is entirely undeveloped at this time, she said, and there are no roads leading into or crossing it.—*Ledger-Gazette*

Boundary To Be Fixed . . .

WASHINGTON, D. C.—The long fight to determine the official California-Arizona boundary was virtually ended with passage by the Senate of a bill to negotiate a formal compact fixing the state lines along the Colorado River, Senator Thomas H. Kuchel stated. The compact establishing the boundary will not be effective until ratified by Legislatures of both states and approved by Congress. "The two states have been in conflict about taxing powers, enforcement of fish and game laws, water use, and health and safety because of a lack of precise boundary," Kuchel said. Historically the middle of the stream has been the interstate line, but the wanderings of the river have made it difficult to determine where the boundary was September 9, 1850, when the California Constitution was adopted.—*Los Angeles Times*

Davis Water Released . . .

DAVIS DAM — Scheduled release of Colorado River water at Davis Dam to meet heavy summer irrigation requirements in Mexico will result in the lowering of Lake Mohave an additional 13 feet between August 1 and November 1, making a total drop of about 22 feet in the lake's level for the June through October period this year. One of the purposes for which Davis Dam was constructed is to service provisions of the water treaty between this country and Mexico, ratified in 1944. Under terms of the treaty, this country must deliver 1,500,000 acre feet of water annually across the border for use by irrigators in Mexico.—*Desert Star*

Death Valley Stamp Asked . . .

DEATH VALLEY—State Senator Charles Brown is sponsoring a campaign to have a Death Valley National Monument, California-Nevada, commemorative postage stamp issued by the Post Office Department early in 1957. In a letter to Postmaster General Summerfield, Senator Brown emphasized that the State of California has approved establishment of a Death Valley Museum at a cost of \$350,000 and that recognition of Death Valley as a national attraction is at an all-time high. Issuance of the stamp in 1957 also would mark the centennial of Jean LeMoigne's birth. He was one of the noted prospectors and mining engineers associated with the valley. The year 1957 also coincides with the first government surveys made in Death Valley and Shorty Harris, another noted Death Valley figure, was born in 1856.—*Inyo Register*

NEVADA

Washoe Project Approved . . .

RENO—Final federal approval was given to the \$43,700,000 Washoe project, providing reclamation, power and flood control development on the Carson and Truckee rivers. According to engineers, it will cause Pyramid Lake to dry up by the year 2000. Actual construction is not expected to get under way until next year, because the measure signed into law by President Eisenhower, provides no appropriation.

Land Office Extends Hours . . .

RENO—Liberalized regulations for the filing, posting and speedier processing of documents handled by land offices of the Bureau of Land Management were announced by the Department of Interior. The BLM's 15 land offices will adopt a uniform schedule of business hours during which they will be open to the public for the filing of documents and inspection of records from 10 a.m. to 3 p.m. each working day.—*Humboldt Star*

Pool Safety Asked . . .

GERLACH — Alarmed by the increasing number of deaths by drowning in the natural hot pools near Gerlach, the local Lions Club has petitioned the Washoe County commissioners to take action to make the place safer. Four persons have lost their lives in the past year in the hot pools. The Lions Club specifically requested that the county fill in the 40-foot deep pool with gravel to a water depth of six feet.—*Nevada State Journal*

States Trade Wildlife . . .

CARSON CITY — Nevada has traded 100 chukar partridges to the state of Arizona for 20 javelinas. Three of the javelina boars and five sows were released by the Nevada Fish and Game Commission in the McCullough Mountains of Clark County.

Archeological Survey Completed . . .

CALIENTE—Archeological survey of the Pine Canyon Reservoir site, 17 miles from Caliente, reveals that no evidence of early man will be endangered by the construction of the dam and the creation of the reservoir. The Corps of Engineers expects to begin the work next spring. The study was made to determine if any material of archeological significance would be destroyed by the formation of the lake.

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If important evidence of Indian life had been located, it would have been imperative that it should be salvaged before it would be damaged or destroyed by the project, the Park Service said.

NEW MEXICO

Indian Progress Seen . . .

SANTA FE—W. G. Donley, director of Indian education for the State Department of Education, predicts a basic change in the life of the New Mexico Indian within the next 15 years. By 1971, he predicts all the state's Indian children will be absorbed into the public schools and will know at least the rudiments of the English language. In explaining the problems facing educators, Donley named isolation as one of the biggest. Of New Mexico's approximately 16,800 Indian children of school age, only 4000 are now in public schools. Donley expects to add 1875 to the total next school year.—*Alamogordo Daily News*

Indian Tribes Organize . . .

GALLUP—Elected leaders of more than a third of the nation's Indians met in Gallup during the Inter-Tribal Ceremonials in a unique experiment in mutual assistance. Purpose of the meeting was to work out a united approach to the problems affecting all Indians, and discussion ranged from ways to develop reservation resources to more effective political action. Modern tribal business corporations, healthy, prosperous, wholesome communities and well-educated youth are the goals set down by the Indian leaders. Commented one leader: "There is something radically wrong with the kind

of federal supervision of Indian Affairs we have had when after 135 years of Indian Administration, Indians face more problems than ever before." —*Yuma Sun*

Wildlife Group to Meet . . .

CLAYTON—Clayton will be the setting for the annual meeting of the New Mexico Game Protective Association on October 18-20. Delegates are expected to discuss a wide range of current topics related to wildlife protection and propagation, ranging from water resources to game management and military land acquisition.—*Alamogordo Daily News*

Asks Cloudseeding Ban . . .

CIMARRON—At the suggestion of engineer-farmer Neal Hanson, the Colfax County Commission has asked Governor John F. Simms to seek a court order stopping cloudseeding on the West Coast which, Hanson believes, has robbed clouds of moisture which normally would have fallen in New Mexico. He suggested that Colorado, Texas and other drouth states join with New Mexico in seeking an injunction. He said Washington and Oregon each had from 18 to 21 inches more rain than normal in the last six years and New Mexico had 21 inches less than normal in that period.

Visitor Increase Noted . . .

ALAMOGORDO — Visitors to White Sands National Monument as of mid-July outnumbered those at the same time last year by more than 5000. The respective totals: this year—157,243; last year—152,167. Prospects seemed bright for a 1956 total above last year's all-time record of 275,000 visitors.—*Alamogordo Daily News*

UTAH

Giant Barge on Lake . . .

PROMONTORY—The largest vessel ever to sail on the Great Salt Lake was launched at Promontory recently. The giant, drop-bottom barge, almost as long as a football field, is the first of a fleet of six which will be used by Southern Pacific Railroad in a \$49,-

000,000 project to build a solid, dry-land roadbed across the inland sea. The monster-size barges each will carry 2000 cubic yards of rock and gravel every time they shuttle from shore loading points to deep water in the middle of the lake. Their task will be to dump 31,500,000 cubic yards of materials to create, in the next four years, a 13-mile long embankment. This will connect 18 miles of existing shallow water fill and replace the famed wooden trestle built by Southern Pacific 52 years ago.

Wild Sheep Seen . . .

BROWN'S PARK—Wild mountain sheep, thought to be practically extinct in Utah, have been seen in the Brown's Park region. One yearling ram, believed to be one of those planted by local game officials in the eastern end of the Uintas, was found near Cross Canyon in a herd of domestic sheep. The young bighorn later moved on and it was assumed that he returned to his native grounds in Lodore Canyon where about 30 bighorn are located.—*Vernal Express*

Bryce Gains Independence . . .

BRYCE CANYON NATIONAL PARK — Announcement of the appointment of Glen T. Bean as superintendent of Bryce Canyon National Park marks the coming of age of that park and climaxes the efforts of local interests who long have battled to get the park out from under the wing of Zion National Park. Since first designated as a national park in 1928, Bryce has been under joint-administration with Zion.—*Garfield County News*

Zion Improvements Planned . . .

ZION NATIONAL PARK — Seventy-six square miles of spectacular red rock canyons recently acquired by Zion National Park will become a tourists' paradise when a road building program gets out of the planning stage. The newly acquired territory is Zion National Monument, a wilderness region accessible only on horseback or on foot and connected to the park proper by a narrow strip of land along its southeast corner. An expenditure of more than \$3,000,000 to be used for a system of roads, public camp grounds, museums and trails will bring the monument up to park standards during the next 10 years. The Park Service predicts that the building of roads into the park from Highway 91 will boost the number of Zion visitors from the present 400,000 a year to over a million annually. The Finger Canyons of Taylor Creek, the great unnamed natural arch and Death Point will then be among the better known landmarks of Zion Canyon.—*Washington County News*

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MINES and MINING

El Centro, California . . .

Nickel in commercial quantities apparently exists in the Coyote mining area about 35 miles west of El Centro, spokesmen for a group of San Diego businessmen with options on the land reported after receiving two assayers' reports. Less than four percent of all nickel used in the United States is mined in this country and if current indication on the Coyote property is borne out by core-drilling findings, a highly strategic mining operation may be launched, the businessmen added.—*Mining Journal*

Gardnerville, Nevada . . .

At least three tungsten mines near Gardnerville are being reactivated and the mill operated by the Metallurgical Development Co. is preparing to handle their ore. The activity is reportedly the result of President Eisenhower's approval of the two-and-a-half year extension of the tungsten purchase act. In essence, the new law authorizes and assures a government market for: 1,250,000 units of tungsten by December 31, 1958, at \$55 per unit; continuation of purchases of fluorspar, asbestos, columbium-tantalum.—*Pioche Record*

Henderson, Nevada . . .

Titanium Metals Corporation of America is in the process of acquiring a 15-year lease on the local plant properties at Henderson of the Pioche Manganese Co., including power, water and utility rights. Meanwhile, the firm announced that the three-millionth pound of titanium metal was processed at its ingot melting furnaces at Henderson, largest in the world.

Rosamond, California . . .

Crescent Carbon Corporation of Niagara Falls, New York, has applied to the Kern County Planning Commission for a zoning variance to permit construction and operation of a graphite processing plant at Rosamond valued at \$250,000. Contractors for the Eastern firm anticipate a March, 1957, completion date for the plant. — *Mojave Desert News*

Austin, Nevada . . .

Hercules Mine near Austin has uncovered a wide vein of silver ore, with assays running as high as 1031 ounces per ton—approximately \$900 a ton net. Silver is the basis of Austin's original fame and glory. Length and extent of the vein are as yet undetermined. The vein is in Marshall Canyon between the famous old Union and Ophir mines, both producers of big fortunes.—*Reese River Reveille*

Virginia City, Nevada . . .

Decision to resume mining activities on the Comstock Lode at Virginia City was announced by Louis H. Seagrave, president of Consolidated Virginia Mining Company. He said Con-Virginia has decided on an active program for development and operation of its extensive holdings which have been inactive since the government shut down gold mining operations in 1942. The properties have produced gold and silver valued at more than \$220,000,000. Seagrave pointed out that earlier operators concentrated solely on high values and ignored ore of lower values which are of commercial grade today. — *Nevada State Journal*

Eureka, Nevada . . .

Stockholders of the Eureka Corporation, Ltd., were told of a progressive development program planned for the company's Ruby Hill property. Officials said that a long series of difficulties seem at an end. Several lead-silver-gold ore bodies have been indicated by drilling and the company expects to find a good many similar ore bodies as the result of the active program that will be started.—*Nevada State Journal*

Grants, New Mexico . . .

Anaconda Company has filed 1800 mining claims in McKinley County. This is the largest number of claims filed at any one time and the biggest filing in the history of the county. Land involved is on the Fernandez Ranch north of San Mateo. The claims are not the result of a strike, but a long range wildcat operation, the company reported.—*Pioche Record*

Independence, California . . .

Huntley Industrial Minerals, Inc., plans to expand its operations by reactivating the Blue Star Talc Mine on Big Pine Creek. The Huntley firm has been doing considerable development work at the Blue Star, stripping the overburden from the talc body, putting in a new road to the mine and rebuilding the bridge over Big Pine Creek. Nearly completed is the firm's new processing plant at Hot Creek in Mono County.—*Inyo-Independent*

Window Rock, Arizona . . .

Basic geological information useful in the search for oil and gas, uranium deposits and ground water in the Four Corners area of the Navajo Reservation is contained in a new geologic map released by the USGS. The map covers the distribution of structures, with text interpretations stating that there are possibilities for the occurrence of oil and gas in some of the underlying Paleozoic strata, and several possibly favorable untested structures in the area. The map, titled "Geology of Carrizo Mountains Area," may be obtained for one dollar from Distribution Section, Geological Survey, Denver Federal Center, Denver, Colo.

Window Rock, Arizona . . .

Secretary of the Interior Fred A. Seaton has vetoed a proposed 25-year oil and gas development contract negotiated between the Navajo Indian Tribe and the Delhi-Taylor Oil Corporation of Dallas, Texas. One of his objections was based upon the questionable legality of the proposal. The contract would have embraced 5,300,000 acres, about one-third of the Navajo Reservation. The Secretary said the proposed contract is in effect a lease agreement and that the Department's Solicitor has questioned the authority for such an arrangement under existing law. The law precludes the leasing of Indian reservation lands for oil and gas development without advertising for competitive bids. The secretary pointed out that 12 other oil companies in addition to Delhi-Taylor have been conducting geophysical work on the reservation during the past year and that several have indicated their desire to enter into leases on a competitive basis.

Bonanza, Utah . . .

Details of the world's first large-scale privately financed project for the production of petroleum products from a raw material other than crude oil were announced recently. The \$16,000,000 project will convert gilsonite into coke for the aluminum industry, and high octane gasoline. Work is being done in three phases: 1. new "wet" mining techniques are being introduced at the Bonanza deposits; 2. a 71-mile pipeline is being laid for transporting the gilsonite in suspension from Bonanza to Grand Junction, Colorado; 3. at Gilsonite, Colorado, a newly-named location near Grand Junction, the processing plant is being located on a 1200 acre site. When fully operating, the plant is expected to handle more than 600 tons of gilsonite daily and employ 125 persons.—*Vernal Express*

Durango, Mexico . . .

Mexican mining experts report that Durango's iron mountain—El Cerro del Mercado—holds an estimated 600,000,000 tons of high grade iron ore, most of which juts out 700 feet above the surrounding plains. The iron mass extends for nearly one mile, with a width of about 2000 feet. Ore averaging 60 percent to 75 percent pure iron, is being mined and transported by railway at a rate of about 1000 tons daily.—*Pioche Record*

Boron, California . . .

Plans for the construction of an ore processing plant seven miles east of Boron were disclosed recently by Fairmont Minerals, Inc., of Los Angeles, which owns and operates mining properties near Trona and in Nevada. Total investment in plant and property is expected to amount to about \$100,000.—*Boron Enterprise*

Los Angeles, California . . .

A "Declaration of Policy" will be issued at the American Mining Congress' metal mining and industrial minerals convention and exposition at Los Angeles, October 1-4, organization representatives declared. The Congress will attempt a new approach to policy statements with its "Declaration." The statement will be drafted by a nationwide committee.—*Salt Lake Tribune*

Hayden, Arizona . . .

Kennecott Copper Corporation is clearing a 25 acre site for a smelter at its Ray Mines Division adjacent to the company's mill at Hayden. The new smelter is part of a \$40,000,000 expansion program for Kennecott's Ray Mines Division. Besides the smelter, the improvement program includes extension of open pit mining at Ray. The program is designed to accelerate output of the Ray Division by 20,000 tons by 1958.—*Salt Lake Tribune*



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URANIUM NEWS

Milling Problem Blocks Action in Big Ore Find

Hart Uranium of Austin, Nevada, reported that it has not yet discovered a method to profitably process the estimated 2,000,000 tons of low-grade uranium ore it has blocked out. Several prominent uranium firms have made extensive tests on the property in an effort to decide the amenability of the ore—the cost of processing it and the difficulties that will be encountered.

All agree that the values and tonnage are satisfactory if a way can be found to mine the ore and leave a reasonable profit. Some experts have estimated that the value of the ore in the Hart claims is \$32,000,000—and that it will cost \$35,000,000 to process it.

More than 20 holes, varying from 10 to 100 feet deep, have been drilled on the claims, and assays have shown returns of from .10 to .11 percent uranium.—*Pioche Record*

Prospector-Teacher Says Rundberg Mine Best in U.S.

Marty Hess, instructor of the Mobile Uranium Prospector's School, declared that the Rundberg Uranium Mine near Austin, Nevada, is the best in the United States.

Following an extensive inspection tour of Southwest uranium mines, Hess said, "I have seen nothing to compare with Austin's coffinite discovery — not even in Gilpin County, Colorado, the pitchblende district of America. Ore bodies in the Austin area show width, massiveness and consistency on a regular vein formation that I have not seen in any other continental U. S. uranium mine."—*Nevada State Journal*

The AEC's Grand Junction Operation's Office announced that it has received an official proposal from a five-company combine for permission to construct a uranium processing mill in the Grants, New Mexico, area. The proposal, submitted by United Western Minerals Co., Rio De Oro Uranium Mining Co., San Jacinto Petroleum Corporation, White Weld & Co., and J. H. Whitney & Co., is the second for a Grants mill to be submitted in a little over two months. American Metal Co., Ltd. representing Sabre-Pinyon Corporation, made a similar proposal earlier.—*Grants Beacon*

Judicial Ruling

Commercial Ore Not Required for Claim Protection

In a decision expected to have far reaching consequences for the Uranium Industry, a district judge in Gallup, New Mexico, has ruled that it is not necessary for a claim holder to have discovered commercial quantities of uranium ore in order to keep others from entering his claims.

Albuquerque attorney Charles Spann explained that the decision made by Judge Clyde C. McCulloh in a suit filed by Ranchers Exploration and Development Corporation holds that as long as the corporation "was in possession of the claims upon which it had filed, and was, in good faith, carrying on a program of exploration and discovery, it was not necessary for it to have discovered commercial quantities of ore at the bottom of each 10-foot pit."

The firm successfully sought to enjoin others from entering their claims while they were in the process of exploring and developing them. The attorney explained that the ruling meant that the firm was entitled to protection against "clandestine or adverse entry" during the temporary absence of its employees.—*Mining Record*

URANIUM-TUNGSTEN-MERCURY ZIRCONIUM-ZINC

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COMPTON, CALIFORNIA

High Haulage Costs

Industry Seeks New Methods for Up-Grading Ore

Uranium ore treatment on the Colorado Plateau is expected to take on a new form during the next several years following expected rapid cleanup in the months ahead of pending concentrator contracts on the part of private firms and the Atomic Energy Commission.

The industry is now looking toward real progress on various up-grading devices similar to those employed by Vanadium Corporation of America at its Monument No. 2 mine below the Utah border in Arizona and the chemical leach process which Union Carbide Nuclear reportedly will use in up-graders at Slick Rock, Colorado, and Greener, Utah.

VCA uses a straight sand-slime separation profitably and effectively at its Monument property. Union Carbide Nuclear reportedly is planning a somewhat similar separation, but will probably use an acid leach on the sands following the separation.

Other firms are seeking different applications of low-cost reagents on ores which might not be amenable to either the VCA or the Union Carbide Nuclear process.

Crux of the up-grader problem is to produce a concentrate cheaply enough, but of sufficiently high metal content, to beat the cost of transportation. The government's new buying program has no haulage allowance in it for ore.—Robert W. Bernick in the *Salt Lake Tribune*

AEC to Use Tonopah Base for Ballistics Tests

The AEC explained the purposes and functions of the test site being constructed near Tonopah, Nevada, as a three-year program of ballistics and associated tests of atomic bomb shapes. There will not be any actual nuclear detonations on the property.

The first test on the new 624 square mile test range is expected between October 1 and December 1 of this year. Thereafter experiments will be held on an average of 10 days a month, or about 120 days a year.

Right of entry, instead of permanent acquisition, was requested by the AEC for the Nevada land because it is planning to use the range only for three years.

In the past similar tests have been performed at the commission's Salton Sea, California, test base, within a limited portion of the Yucca flats area of Nevada test site, and at various Department of Defense ranges.—Goldfield-Beatty *News Bulletin*

THE PROSPECTOR'S CATALOG

We are pleased to announce the advent of a new *Minerals Unlimited Catalog*, specifically designed for the amateur or professional prospector. If you are interested in Geiger Counters, Mineralights, Blowpipe Sets, Gold Pan or any of the other equipment necessary to a field or prospecting trip, send 5c in stamps or coin for your copy.

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U-Mine Bought in 1946 for \$1000 Sells for \$25,000,000

The Happy Jack mine in White Canyon, Utah, was reportedly sold to the Texas Zinc Minerals Corporation. While the selling price was not disclosed, it was believed to be between \$15,000,000 and \$25,000,000. There are 33 whole or partial claims in the Happy Jack deed.

Joe Cooper and Fletcher and Grant Bronson of Monticello, owners of the property, purchased it in 1946 for \$1000. At that time their intention was to mine copper at the site.

An estimated 500,000 tons of high grade uranium ore have been blocked out in more than two-and-a-half miles of drifts in the mine. During development work, more than 50,000 tons of ore, averaging .40 percent uranium oxide, was mined and shipped.—*San Juan Record*

Apex Uranium Co. is investigating possible routes for a road over which to haul ore from its copper properties 65 miles south of Austin. Surveys have been made from the ground and air and it is reported that the most likely route will go through the ghost town of Grantsville to Luning, a distance of 60 miles. At Luning the ore can be loaded on the railroad for transportation to the mill.—*Nevada State Journal*

Enos J. Woodward, a prospector working in the Mountain City, Nevada, area, reported that he and his partner, Thomas M. White, have discovered a uranium deposit in the rodeo grounds at Mountain City. Woodward said that they had staked out 11 claims in a 3000 square foot area in and around the ground.—*Nevada State Journal*

United States uranium operators have received \$7,145,129 in initial production bonuses from the program started in 1951 by the AEC. A total of 3824 individual payments were made. Maximum payments for production of 10,000 pounds of uranium oxide were made to 738 properties.

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GEMS AND MINERALS

OCTOBER SHOW DATES ANNOUNCED BY CLUBS

The following gem and mineral societies are planning October shows:

October 5-6—Humboldt Gem and Mineral Society's third annual show at Redwood Acres, Eureka, California.

October 6-7 — Long Beach, California, Mineral and Gem Society's annual show at National Guard Armory Drill Hall.

October 6-7—San Fernando Valley, California, Mineral and Gem Society's show at Victory-Van Owen Recreation Center, North Hollywood.

October 12-13—Whittier, California, Gem and Mineral Society's annual show at Whittier Quad Shopping Center.

October 13-14—Searles Lake, California, Gem and Mineral Society's show at Trona.

October 13-14—Napa Valley, California, Rock and Gem Club's fall show at fairgrounds.

October 13-14 — Hollywood, California, Lapidary and Mineral Society's ninth annual show at Plummer Park, 7377 Santa Monica Boulevard, Los Angeles.

October 20-21—Orange Belt Mineralogical Society's 10th annual show at Orange Show Grounds, San Bernardino, California.

October 20-21—Seattle, Washington, regional gem and mineral show at civic auditorium.

October 20-21—San Francisco, California, Gem and Mineral Society's show at Scottish Rite Auditorium, 1290 Sutter St.

October 27-28—Pajaro Valley, California, Rockhounds rock and hobby show at YMCA building, Watsonville.

October 27-28 — Lockheed Employees Recreation Club Rockhounds show at Burbank, California, Recreation Center.

In addition, these early November show dates were announced:

November 3-4—Montebello, California, Mineral and Lapidary Society's show at Taylor Ranch House.

November 3-4—Sacramento, California, Mineral Society's show at Turn Verein Hall.

LONG BEACH ROCKHOUNDS PLAN OCTOBER 6-7 SHOW

"Nature's Jewels" is the theme chosen for the 12th annual Long Beach, California, Mineral and Gem Society's show, scheduled for October 6-7 at the Long Beach National Guard Armory.

Special attraction will be a puppet show dealing with a typical rockhound field trip complete with chuckwagon, prospector and burro. Jewelry designer Susie Cowling of Palm Desert will demonstrate the art of making jewelry during the show and also there is planned a working lapidary exhibit, the fluorescent display of Hazel and Walter Grindle and many other displays.

Announcement was made by the Texas Federation of Mineral Societies that it will hold its state show in San Antonio on May 3-5 of next year.

MIRACLE OF ROCKS IS DELVERS SHOW THEME

The Delvers Gem and Mineral Society of Downey, California, plans to present its Sixth Annual Show September 29 and 30 at Simms Park Auditorium in Bellflower. Show theme, "The Miracle of the Rock" is to be carried out through the displays of five guest exhibitors: Jesse Hardman, Dorothy Craig, Jack Schwartz, Veryl and Jim Carnahan and Archie Meiklejohn.

In addition there is planned the regular displays of current lapidary work and mineral collecting by the members of the society, plus an enlarged version of "Rockhounds"—the display of photo enlargements covering field trips, lapidary work and personal rock trips.

ORANGE BELT SOCIETY SHOW SCHEDULED FOR OCT. 20-21

The 10th annual admission-free Orange Belt Mineralogical Society's show is slated for the Orange Show grounds in San Bernardino, California, on October 20-21. Plenty of free parking is promised for the event which is scheduled to run from 10 a.m. to 10 p.m. on both days.

Non-competitive displays will be prepared by members of the society. Many won blue ribbons at the recent state federation show in Fresno and included in the showing will be spheres, cabochons, slabs, bookends and other types of lapidary and jewelry work plus geode, mineral, nodule, shell and fossil collections.

Hugh and Lottie Thomas have scheduled colorful slide shows of field trips. Lapidary equipment demonstrations also are planned.

"OUR BRAGGIN' ROCKS" IS MONTEBELLO SHOW THEME

Theme of the November 3-4 Montebello, California, Mineral and Lapidary Society's Third Annual Rockhound Roundup will be "Our Braggin' Rocks." The show is scheduled for the Taylor Ranch House, 737 No. Montebello Blvd., where the paintings of California artists will be displayed as an added attraction.

Among the outstanding exhibits planned is the collection of gemstones carved in China owned by Col. C. M. Jenni, and Sol Shalevitz's rare crystal groups and tourmalines.

Show hours are 10 a.m. to 10 p.m. on November 3 and 10 a.m. to 6 p.m., November 4.

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One of the most complete and informative "wish books" for lapidary, gems and minerals hobbyists has been placed on the market by Grieger's, Inc., of 1633 E. Walnut St., Pasadena 4, California. The large volume supply house's *Encyclopedia and Super-Catalog of the Lapidary and Jewelry Arts* is a 25th Silver Anniversary presentation and was printed at a cost estimated at three times the asking price per issue.

Here is a self-contained catalog of jewelry making tools and supplies; jewelry parts; lapidary-jewelry books; tumble polished gems; cut gems; gem cutting machinery and supplies; blank mountings; jewelry metals; ultra violet lamps; preforms; rough gem stock—plus numerous instructive articles on such helpful subjects as jewelry settings, how to make belt-buckles for gem displays, silver soldering, jewelry making at home, jewelry enameling and many others. All items offered for sale are illustrated and eight different colors of ink were used in the printing of this book.

Grieger's has pioneered the wide selection-low price merchandising of lapidary and jewelry supplies and this is reflected in the handsome, 224-page book.

A first edition of 10,000 copies will be sold for \$1.50 paper bound and \$2.50 cloth. A second edition is planned and prices for it will be advanced to \$2 paper and \$3.50 cloth.

Half of the first edition was sold prior to release which attests to the volume's mounting interest and value to hobbyists throughout the land. Encyclopedia-catalog orders may be placed with Grieger's or Desert Crafts Shop, Palm Desert, California. California purchasers should add three percent sales tax.

CHRYSOBERYL RANKS WITH THE MOST PRECIOUS STONES

One of the strangest of all minerals is chrysoberyl, which, in its various forms, supplies some of the most lovely and durable as well as most expensive gems in the world today. It is composed of oxide of beryllium (20%) and aluminum (80%) with a hardness of 8.5, slightly below that of corundum which is next in hardness to diamond. Chrysoberyl always is found in crystals in its original state, appearing nearly always in pegmatite dikes and often associated with beryl from which it is distinguished by its higher density and luster. In the United States it is found in Colorado, Maine and Connecticut.

One of the varieties of the gem stone is cymophane. The stone contains tiny, needle-like inclusions which require microscopic inspection to detect and which give the stone a marked chatoyance when cut in high cabochon shape, to which the name chrysoberyl cat's eye or oriental cat's eye has been applied. The chatoyance takes on the effect of a bright streak of silvery light which seems to move over the face of the gem.

Another variety of chrysoberyl, alexandrite, carries marked hues of red and green. This very valuable gem generally is cut in some form of faceted shape, which brings out its latent fire and reveals the characteristic which makes it so valuable and desirable. In the light of day it has a bright or deep olive-green color, but under rays of artificial light it changes to a soft columbine red, resembling the color of ripe raspberry. The gem is a most lovely, interesting and expensive one.—El Paso, Texas, Mineral and Gem Society's *The Voice*

CALIFORNIA FEDERATION ADDS NEW MEMBER CLUBS

Eight gem and mineral societies with a total membership of 284, were admitted to the California Federation. They are: Canyon City Lapidary Society of Azusa; Estero Bay Gem and Mineral Society of Morro Bay; Lakeside Gem and Mineral Society; La Roca y Mineral Society of Dos Palos; Palm Springs Lapidary Society; South Bay Lapidary and Mineral Society of Hermosa Beach; South Gate Mineral and Lapidary Society; and from Oregon, Mt. Emily Gem and Mineral Club of Brookings.

MODERN, ENLARGED STORE FOR COMPTON ROCK SHOP

Construction is underway on a modern new home for the Compton Rock Shop of Compton, California. The seven-year-old lapidary, mineral and prospecting supply house will be increased in floor space by two and a half times and a 40-foot glass wall case with special lighting arrangements will house mineral displays.

Owners of the Rock Shop, whose new address will be 1405 South Long Beach Blvd., Compton, are Mr. and Mrs. William Iandiorio.



EXCITING News

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GREEN GARNETS, OLIVINE CONFUSED BY COLLECTORS

Mineralogists list the varieties of chrysolite under the common term "olivine." To American jewelers it most usually is known as peridot. For many years lapidaries were in the habit of calling chryso-beryl "oriental chrysolite," and in consequence the two stones (green garnet and olivine) have been confused despite the fact that chrysolite is much the softer of the two and often shows marked differences in color and luster.

Peridot is yellowish green, resembling a light tourmaline with a dash of yellow. Olivine is the name associated with the brighter yellowish emerald green stones. Hardness is 6.5 to 7; cleavage, distinct; fracture, conchoidal brittle; luster, vitreous; color, typical olive green, brownish, grayish red and black.

The approved tint of peridot resembles that revealed by looking through a delicate translucent green leaf. Hyalosiderite (Job's Tears) is a highly ferrous variety of this stone, its specific gravity attaining 3.57 and its color is a rich olive green.

Olivine is a constituent of meteorites. The sources of supply of this somewhat puzzling mineral are doubtful. Small chrysolites of good quality are found in the sand with pyro garnets in Arizona and New Mexico.—Pick 'n Shovel

Eight Seattle, Washington, gem and mineral clubs with a total membership of 500, are making plans to present a show on October 20-21 at the civic auditorium. Among the outstanding displays scheduled are the portrait cameos of Raymond Addison of San Jose, California; crystals from the collection of Arthur and Ellen Foss; carved figurines from Northwest gem materials collected by Adolph Keitz; replicas of the world's most famous diamonds; heirloom jewelry owned by Mrs. Pearl Bell; prehistoric artifacts; polished fossil wood fireplace made by Charles Wible of Tacoma; desert fire agate carved into miniature figures by Olive Colhour of Beaver, Washington, and many others.

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DRY POWDER POLISHING FORMULAS FOR SLABS

Harry Ohlsen of the Long Beach, California, Mineral and Gem Society, uses two polishing formulas on flat slabs. His polishing equipment consists of a 10-inch aluminum convex disk with the center raised one-eighth inch above the perimeter. Over this disk is placed a layer of one-quarter inch sponge rubber and on top of the rubber is fastened a piece of No. 8 canvas.

This disk is mounted on the end of a shaft one inch in diameter which is passed through a three-step pulley. The disk runs at speeds of 300 to 1725 rpm. The harder the rock, the greater disk speed needed to polish it. A fractured face or an opal face sometimes needs a slower speed to prevent popping or fractures arising from friction and heat.

One of his polishing formulas consists of the following dry powders: nine tablespoons carborundum buffing powder grade A-1 fine; three tablespoons of tin oxide; and one tablespoon "F.F.F." carborundum grit. To this mixture is added enough water to get the consistency of cream.

For more difficult material to polish he uses 12 tablespoons of cerium oxide and one tablespoon of "F.F.F." carborundum. Carborundum, when added in small amounts, gives the polishing formula enough bite to remove minute sanding scratches.

Ohlsen paints the disk canvas thoroughly with the polishing compound and then allows it to dry before starting to polish. One application will last for weeks, and he recommends applying the paste with an old shaving brush.

During the polishing operation, he paints the face of the rock several times with a thin coating of the polishing compound. Too much polishing compound defeats its own purpose, he warns.—*Mineral News*

ROCKY MOUNTAIN FEDERATION ELECTS JAMES F. HURLBUT

James F. Hurlbut was named president of the Rocky Mountain Federation of Mineralogical Societies at that organization's recent Rapid City, South Dakota, convention and show.

Serving with Hurlbut will be Charles Horvath, vice president, and Miss Muriel Colburn, secretary-treasurer. All three officers are from Denver, Colorado, and the 2400-member federation plans its 1957 convention and show for that city. — *Sooner Rockologist*

Sardonyx is composed of alternating layers of onyx and carnelian, and usually is cut as a cameo, that is, carved in relief or as an intaglio thus allowing the background and figure to be of two different colors. Sard is a reddish carnelian and like all varieties of agate has a wide distribution.—*Contra Costa, California, Mineral and Gem Society's Bulletin*

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COLLECTORS SHOULD NOT IGNORE VALUE OF NON-GEMS

Have you thought of collecting geological specimens other than fossils, gem stones or the usual mineral forms?

During the movement of rock masses along fault planes, the masses are usually of such immense size and weight that the movement of one face over the other takes place under enormous pressure. As a result, the faces become smoothed and striated. Frequently, the faces are left with an enamel-like polish. This surface is known as slickenside. Some of the surfaces cover a considerable area and the stria are deep furrows, but the collector will be more interested in the small cabinet specimens. They may be found in many places.

Another interesting phenomenon of earth movements which leaves a record, is faulting. It is possible to find cabinet specimens which show it.

After a flood or even the drying of a rain puddle, soft, muddy sediments in drying shrink and crack into polygonal blocks, much like those left after a housewife's starch dish has dried out. Should these be exposed to sun and air, the blocks will harden. During dry seasons, wind-blown sand or silt sometimes fills the cracks with sediments which are harder than the mud. Thus, the polygon blocks are preserved even though the area may again be flooded. After a series of deposits has hardened into rock, the layers again may be exposed showing the mud-cracks on the bedding planes. It also is possible for rain drop marks to be preserved in this manner.

Frequently on the bottom of puddles or along shore lines, water covers ridges in the sand which were formed by the rippling water. Often these ripple marks are preserved in much the same manner as are mud cracks. These make interesting specimens.

As a glacier flows, boulders and pebbles which are frozen into the bottom are dragged heavily over the bedrock floor. These boulders and pebbles often have faceted sides which are striated and scratched. While not spectacular, they too make worthwhile additions to any collection.

On the desert, windblown sands cut and carve rock surfaces into various forms. Pebbles in such places are frequently faceted into angular forms commonly with triangular cross sections. These are known as dreikanter and also will look good in your cabinet.—*Pebbles*

WOODRUFF ELECTED HEAD OF AMERICAN FEDERATION

Harry L. Woodruff of Washington, D.C., was elected president of the American Federation of Mineralogical Societies at the recent St. Paul, Minnesota, Convention. Also elected were Vincent Morgan, vice president of Boron, California; Hazen Perry, secretary, of Minneapolis, Minnesota; Helen Rice, treasurer, of Hillsboro, Oregon; and Ben Hur Wilson, historian, of Joliet, Illinois.

Elected at the same conclave were the following officers of the Midwest Federation of Mineralogical and Geological Societies: Ester Hemingway, president, Madison, Wisconsin; Vernon Morris, vice president, Iowa; Bernice Wienrank, secretary-treasurer, Chicago, Illinois; and Ben Hur Wilson, historian.—*Minnesota Mineral Club's Rock Rustler's News*

SULPHATE SOLUTION MAKES UNIQUE CRYSTAL DISPLAY

Here is an easy way to make a crystal ornament at home:

Dissolve separately in tumblers of warm water, a half ounce each of sulphate of alumina; sulphate of soda; sulphate of potassium; sulphate of iron; sulphate of zinc; and sulphate of magnesium.

After each is thoroughly liquefied, pour them together into a dish that will allow the mixture to evaporate freely. The dish must not be disturbed or agitated and must be kept free from dust during the process. Just prior to setting the dish aside, stir the mixture with a glass rod.

As evaporation takes place, the solution will begin to shoot out crystals, each mineral giving forth its distinct type.—*Emilie Wells in The Trilobite*

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METHODS FOR SEPARATING MICRO-FOSSILS FROM ROCK

Students of the earth sciences will be interested in the collection of foraminifera, minute fossils which in the main are the remains of marine animals, and whose calcareous shells are perforated with tiny holes. They are found in a wide variety of shapes and sizes, which adds to the hobby's interest.

Most of these micro-fossils, however, are incased in shale or sandstone and to free them it is essential to crush the rock.

The best way to do this without special equipment is to place the rock in a large vise and apply pressure slowly and uniformly. Such pressures will cause the rock to crack away from the shells and not through them as it would if broken with a hammer. After the rock is crumbled to the size of coarse gravel, it must further be removed from around the fossils by other means.

With sandstone, where cementation is less adhesive than in other stones, heating over a low fire often will pry the rock away. Moisture in the cracks forms steam over the flame, and this causes the rock and fossil to separate.

In shale it is not that easy. Sodium hydroxide, in the amount of roughly half the weight of the specimen, in solution with twice as much water, must be added to the crushed rock. Care is needed in this operation, for sodium hydroxide solution will heat up and this concentrated lye may boil over and cause serious injury or damage to clothing.

The gravel should be gently boiled in this mixture in a metal beaker for a half day and then washed and dried. If oil is present, wash the gravel in hot benzene.

Screen your samples through mesh sizes 35, 80 and 120. The finer material which passes through the small screen is made up of broken fossils, clay, dust and rock. The middle sized and coarser screens will yield fossils and rocks.

The former further is separated from the latter by floatation. Solutions for this work are expensive and toxic. One of the best for the home hobbyist, however, is tetrabromethane to which acetone should be added until the specific gravity of the solution is lowered to a point where a piece of feldspar no longer can float in it.

The specimens then are placed in a separatory funnel with this floatation solution. Decant the bottom materials which contain silicates, filtering and collecting the liquid for reuse. The top layer of fossils, after filtration, can be washed with acetone, dried and classified.

It is emphasized that extreme caution should be used in the handling of the chemicals herein named, and it is advisable that the hobbyist have a working knowledge of the chemical apparatuses used in this work before attempting the separation processes. —Ventura, California, Gem and Mineral Society's *Rockhound Rambling*

COLORADO FOSSIL WOODS SHOW WOODPECKER SCARS

Colorado River fossil wood only is found in a few limited areas in the high terraces of the Colorado River from Parker, Arizona, south to the gulf of California. It originated in the late Pliocene and early Pleistocene age when drift wood accumulating in backwater lagoons became waterlogged, sank and petrified. Drifting sand of the desert now covers most of these

deposits and on sloping areas it is exposed and oxidized to a dark brown. Parts of some pieces that are revealed to the wind-blown sands have a fine sand-blast polish.

Most interesting feature of this fossil wood is the fact that while the trees were standing in the ancient forests, they were worked on by woodpeckers. From the size and shape of the holes in the wood, it is evident that at least four species of woodpeckers are represented, among them the forebears of the large ivorybill and pileated woodpeckers and the California woodpecker. There are over 20 varieties of woodpeckers in the U.S. today and their holes or excavations are as distinct as the nests of various other species of birds.

After polishing a cross section of 30 pieces of this fossil wood and using 30-diameters magnification, I find it all to be of the same genus. It resembles *Cocotea Lauracea*, now growing only in the tropics. Also there is a small tree known as *Malosma Laurina* which is native to the mountainous areas of Southern California and Lower California. This tree more closely resembles the fossil wood in cross section and is known as Laurel Sumac. A million years ago, under a more favorable climate, it entirely is possible that this sumac grew much larger than it does today — Martin Murray in the *Orange Gulch Gazette*

STEPS IN THE POLISHING OF GEM STONE RHODONITE

Here is the shaping, grinding and polishing procedure for rhodonite:

After the stone has been marked out, shape it on a trim saw. Rough shaping or grinding is done on the 100 grit wheel with enough water on the wheel to keep the stone from over-heating.

After the stone has been shaped by 100 grit, switch to the 220 grit wheel where the stone is ground to the more exact shape and size desired and the 100 grit wheel marks are removed.

The stone is then ready for the sanding operation which is done on dry sanding cloth. The first sanding of rhodonite should be on an eight-inch drum using 220 grit cloth or on a disk-sander, which works just as well. The 220 sand will smooth out any grinding marks left by the 220 grit grinding wheel. At this point, the operator should start using a magnifying glass to check the stone for large scratches or small flat spots. If there are any, return to the last operation and rework the stone.

After the 220 grit sanding, sand on a well-worn 220 grit cloth on the drum or disk. This will better prepare the rhodonite for the next sanding which should be on a 400 grit disk. After the 400 grit, use a well-worn 400 grit disk then go to the 600 grit stage. A used 600 grit is better for the final sanding than a new one because it will not cut or scratch the work. These sanding operations should take two or three minutes each.

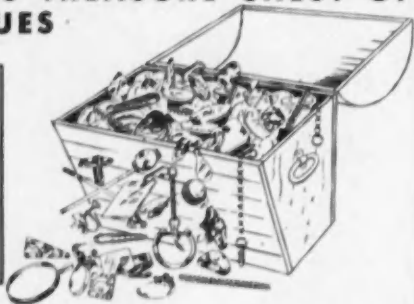
When the sanding is completed, the stone is ready to be polished on the buff. Especially well suited for rhodonite is a No. 6 canvas stretched over a maple disk with a piece of quarter-inch hard felt between the canvas and the wooden disk.

Use a polishing powder of your choice applied to the center of the buff with a small brush. Before you do any buffing be sure that the canvas has been dampened evenly all over or you are liable to scratch the stone. The buff should be damp enough so the polish will work in the spacing in the canvas and show a dry area from a few moments contact with the stone. Polishing should not take more than five to seven minutes. —Walt Biggs in the Verdugo Hills, California, Gem and Mineral Society's *Rockhound News and Views*

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AMATEUR GEM CUTTER

By DR. H. C. DAKE, Editor of The Mineralogist

For various special jobs, the gem cutter will find the flexible shaft hand grinding tool of considerable value. The flexible shaft we refer to is the type having a pencil size hand-piece, similar to those in wide use by dentists, jewelers and engravers. It is quite obvious that for fine work a pencil thickness hand-piece is needed. The thick and bulky hand grinders are all right for certain jobs, but not so well suited for close and delicate work. It is like trying to write a fine and neat script with a pencil or pen one inch or more in thickness. Try it once.

These flexible shaft hand-pieces are readily available from supply firms, and at reasonable prices. Two styles are available. In one the flexible shaft is attached to the armature shaft of an electric motor. If you use this type of shaft, better results will be had for most work if the motor's speed ranges from 3400 to 3600 r.p.m. The normal speed electric motor, as used in the lapidary shop, is generally around 1750 r.p.m. To operate the flexible shaft, the motor need not be highpowered, one-fifth or one-sixth horsepower or less will suffice.

Flexible shafts of this type, complete with motor and hand or foot operated switch, are also available, and these range in price from \$16.00 to \$25.00 or more, depending on accessories.

Most of these flexible shaft operated handpieces will take small size mandrels and a great host of points of this kind are readily available. These include hundreds of sizes and shapes of silicon points and wheels, diamond points and wheels in many sizes, steel drills (called burrs by the dentist), felt polishing buffs, etc.

Equipment and tools of this kind are invaluable in executing fine jewelry work. One can hardly expect to do cameo carving without the aid of this tool. With the diamond points, holes may be drilled in various hard gems, provided the material is not too thick. Or in the case of thick work, the hole may be worked from both sides. Diamond points of this kind do not cut clearance, as in the case of a regular diamond drill, hence there is a limit to depth of hole. Soft gems, like turquoise, calcite and malachite are worked with steel drills or burrs, available in dozens of sizes and styles.

The hand-piece will also prove invaluable to those who wish to carve objects from various gem materials. The points for use in the hand-pieces referred to here are available from lapidary supply firms, dental supply houses and jewelry supply firms. The grinding wheel or buff size that may be used

in this tool is limited to about one and one-half inches.

When the diamond points and wheels were first introduced, sales were limited and prices ranged from about \$5.00 to \$12.00 each, making them a costly item. Now with mass production, prices have been greatly reduced. Used with care as they should be, each point or wheel will give a remarkably great amount of service.

Relatively few gem stones will show asterism or a "star" when cut cabochon. While asterism is generally not looked upon as a criterion of identity, its presence serves as an aid in determination.

Six-rayed stars are seen in sapphire and the steep cabochon surface must be cut at exactly right angles to the principal or c axis of the crystal, otherwise the star may be lacking or appear off center in relation to the cabochon surface. The "star" in sapphire does not appear on facet cut gems, since the material must have a certain degree of opacity to present a star. Only cutting will reveal asterism. Pink colored sapphires may also show asterism. These are usually termed star rubies.

Some garnets also show asterism, generally a four-rayed star. A few six-rayed star garnets have been reported in the literature on gemology, but these are quite rare. In cutting a garnet crystal for possible asterism, no special orientation need be made, as the star will appear at a number of points. The garnet crystal may first be cut into a sphere, and the best positions of the "stars" noted. The sphere may then be divided, and two star cabochons obtained.

Some massive quartz may also show asterism, but generally not as pronounced as in sapphire and garnet. Asterism is to be found more rarely in spinel, topaz, emerald and perhaps a few other species.

The following suggestions pertain to the use of diamond impregnated grinding wheels:

(1) Use hardest grade and most durable bond type that job will stand without the wheel overheating. (2) Be sure the spindle and inside flange run true, and that the wheel speed is correct. (3) Grind wet, using plenty of good clean coolant. (4) Avoid excessive pressure or downfeed, and do not overspeed your diamond wheels. (5) Do not let your diamond wheel get overheated. (6) Do not grind steel with diamond wheels. (7) Save your diamond wheel stubs, and also grinding swarf or sludge, and ship to manufacturer for possible salvaging the diamond.

A number of liquids for coating a flat gem surface have been described. These are usually referred to as a "temporary" polish, and include various liquid plastics, Dakes varnish and others.

Ray Lulling has called attention to the utility of Scotch Tape as a temporary polish. The tape may be used to cover any flat gem surface which has not been polished, and would eliminate the frequent and annoying wetting of the surface to better bring out the color and pattern. According to Lulling, Scotch Tape is especially effective in iris agate, being applied in a single layer to both sides of the thinly sawed agate. The tape will serve to bring out the iris agate colors in a most effective manner.

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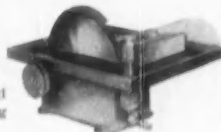
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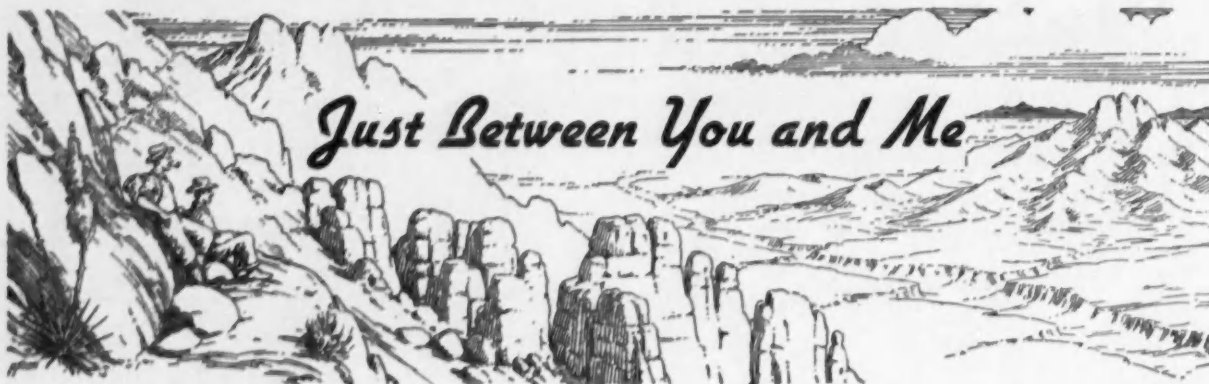
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By RANDALL HENDERSON

MY OLD FRIENDS and neighbors in the Imperial Valley of California, where *Desert Magazine* was born 19 years ago this month, have changed the dates and locale of the International Desert Cavalcade—and I want to pass this information along, for the Desert Cavalcade is one of the most informative and entertaining pageants among all those presented annually in the Southwest.

This year's Cavalcade is to be October 26-27-28, with the colorful historical pageant scheduled for the evenings of October 26 and 27 at the Mid-Winter Fair Grounds. In past years the Cavalcade fiesta was held in March. Sponsored originally by the Calexico community, the Cavalcade association has now been enlarged as an Imperial valley-wide organization, and a new script for this year's program was written by Ed Ainsworth of the *Los Angeles Times*.

Reservations may be made by writing to Desert Cavalcade, Imperial, California.

The hardships—and the faith—of those courageous men and women who blazed the trails across the Southern California desert at a time when there were no roads and few waterholes, will become very real when you have spent an evening watching the Desert Cavalcade.

One of my visitors recently was a prospector who had come to the Southern California desert to find a deposit of rather unusual rhyolite. He had a specimen which I recognized, and I was able to help him in his quest.

Our conversation turned to uranium, and the progress being made toward the use of fissionable ores for commercial purposes. Finally he said: "Yes, it is true the scientists and the inventors have been able to produce just about everything that will contribute to human comfort and wealth—but don't you hope that some day they will get around to the problem of teaching folks how to live?"

I knew what he meant, for I have long felt that the tragic failure of our educational system is that it deals mainly with the intellect of the student, and almost completely by-passes the equally important faculty of feeling. They teach the mind and ignore the emotions. How few students come out of the schools with the ability to recognize within themselves, and the honesty to confess the passions of anger, jealousy, hate, greed, ruthless ambition, intolerance and fear. And what a penalty we all pay for that ignorance!

I think we are making some progress along the slow and difficult trail toward emotional maturity, but the

process could be speeded tremendously if at least half of the scientists now working on gadgets designed to provide profit and luxury for the human race could be diverted to problems of teaching folks how to live—how to make wise use of the gimmicks which science already has created.

The 436 auto casualties over the Labor Day weekend were not due to lack of know-how. They were due mainly to undisciplined emotions.

* * *

All honor to my friend and neighbor, Harry Oliver, editor of the *Desert Rat Scrapbook*. Harry has been awarded a plaque in recognition of his crusade against roadside litterbugs.

As a campaigner for clean highways Harry well deserves the award, but at the next meeting of the Grizzled Order of Desert Rats, I am going to try to have him expelled from the organization. He showed up this week in a pair of those shorts, which have become so fashionable as summer attire for males on the desert. Just imagine an old prospector trudging across the desert landscape with his shanks exposed to sun, rocks and thorns—in shorts!

* * *

It was 19 years ago this month—October 20, 1937—that the first issue of *Desert Magazine* came off the press. We had only 600 subscribers then—600 subscribers and a lot of faith. Today the pressrun has increased to 32,600—and the faith has been more than justified.

We never aspired to make this the biggest magazine in the U.S.A. Our steadily growing circulation has been based on reader interest and loyalty, rather than on high-pressure promotion. That is the way we have wanted it to be.

We edit *Desert* for thoughtful people—for folks who, at least for a few hours each month, would like to get away from the world of hurry and worry and confusion—and into closer association with the peace and beauty and simplicity of natural things. The warm sunshine, the clean air, the uncrowded spaces of this desert land are good tonic for humans who have lived too close to the conflicts of a civilization in turmoil.

I must admit the desert is becoming a little more crowded each year—but there still remain a hundred thousand canyons, mesas and mountains in this vast arid land where you and I may go, and in the seclusion of a wilderness terrain that is seldom visited by human beings, commune with the Great Spirit from whom comes the strength for courageous living.

BOOKS of the SOUTHWEST

HOUSEWIFE RELATES YEAR'S ADVENTURE IN COPPER MTS.

Olga Wright Smith had little realization of what was in store for her when she gave up her comfortable apartment in Cleveland, Ohio, and assumed the role of cook and housekeeper for two miners—one of them her husband—in the great arid Lechuguilla Desert of southwestern Arizona.

"We won't need a house out there," her engineer husband told her. "We won't need overcoats or fuel. All we'll need is a brush shade to keep off the sun. It almost never rains."

And so Olga and Cap went to Arizona to help his father develop what appeared to be a rich copper-gold strike in the Copper Mountains. They arrived in January and remained a year at the claims.

For Olga, a former Iowa school teacher, the move brought a major problem of personal re-adjustment, and the manner in which she met the challenge is delightfully told in her book *Gold on the Desert*, published by the University of New Mexico Press.

Her husband had told her they would be without most of the comforts and conveniences she had always known. But he could not anticipate for her the loneliness, the fear of reptiles, the rigors of desert sand storms or the oppressive heat of the summer days. She learned about these things the hard way. There were days when she felt she could no longer bear the loneliness of the long days when her men folks were down in the shaft or up on the mountainside working at their claims. But she was too loyal, and perhaps too obstinate, to quit. Gradually, she learned to share the men's enthusiasm when the ore-bucket brought up beautifully colored specimens of blue rock specked with gold.

Eventually, she became acquainted with other denizens of the desert—the many species of birds which find sanctuary in the remote desert mountains, the wildlife that is never seen by the mere casual visitor or the traveler on the desert highway. And she found comic characters in her secluded desert camp—the curious lizards, the dancing mice, the cat that needed asbestos shoes, and McGinty, the burro who signalled with his ears.

At the end of a year when the time came for departure, she felt only regret that it was necessary to go. Due to fluctuations of the market, the mine had not yet won them a fortune, but Olga had learned that "the real gold

of the desert doesn't show on the smelter report . . . and I knew just as surely, that some day not far away, I was coming back."

Published by University of New Mexico Press. Halftones. 259 pages. \$4.00.

PAST, PRESENT AND FUTURE OF URANIUM AGE DESCRIBED

If you are wondering what this uranium boom is all about, when and how it all started, and where it is likely to lead, read Fred Reinfeld's *Uranium and Other Miracle Metals*. This work should appeal to a wide readership, from junior high school students to experienced uranium prospectors hard at work on the Colorado Plateau.

The author tells his story in simple, easy to understand language and his information is quite complete. Of particular interest is the dramatic story of the atomic race in the early '40s and the scientific achievements since the bomb was perfected, particularly along the peaceful-uses line.

Published by Sterling Publishing Co., 215 East 37th St., New York 16, New York; scores of photographs and drawings plus color plates; Index; 128 pages; \$3.50.

Prehistoric People of the Northern Southwest is a little booklet which briefly, but thoroughly, describes the coming of man to the Southwest and the growth and decline of the various cultures in this area with special emphasis on the Basketmakers. The author chooses clear and simple language to tell his story and the hair-splitting controversies anthropologists and archeologists dwell on are omitted.

Written by Joe Ben Wheat, curator of anthropology at the University of Colorado Museum, the 38-page booklet includes maps, photographs and bibliography. Published as Bulletin No. 12, it may be purchased by mail order from the Grand Canyon Natural History Association for 50c per copy plus a charge of eight cents for postage and handling.

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NEW WORK PRESENTS POETRY OF IRENE WELCH GRISSOM

The west that Irene Welch Grissom knows and loves is described in her recently published book of verse, *Under Desert Skies*. It is sensible poetry, uncluttered with long passages, thought-twisting descriptions or gushing symbolism.

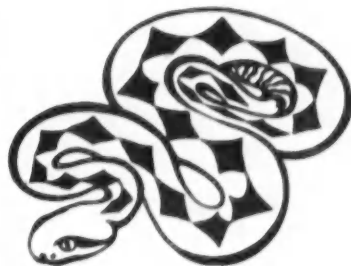
There are poems that give refreshing interpretation to the common things on the desert—the Joshua trees, palo verde, desert palm, mescal, burros, creosote; there is poetry that reflects the challenging struggle of men against aridity; and there are simple poems with universal messages.

The author has written three novels, an autobiography, and several books of verse and for many years she has been a liberal contributor of poetry in various publications, including *Desert Magazine*.

Published by the Caxton Printers, Ltd., Caldwell, Idaho; with pen and ink etchings by L. D. Cram; 118 pages; \$2.50.

Books reviewed on this page are available at
Desert Crafts Shop, Palm Desert

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RATTLESNAKES

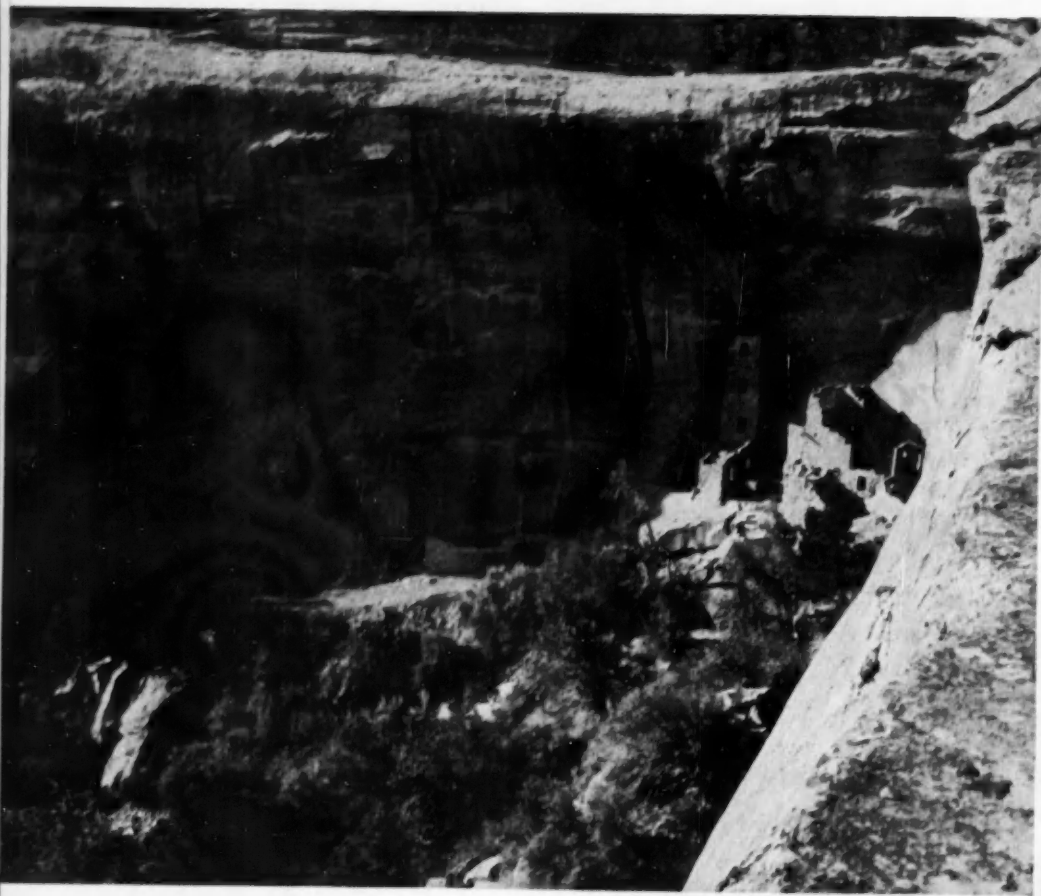
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2 vols. 1530 pages, 238 illus. \$17.50

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Square Tower

Square Tower House on Colorado's Mesa Verde was once a cliff dwelling of 50 rooms and six kivas. Dominated by its remarkable four-storied tower, it perches upon a rock shelf sheltered by the narrow overhang above. Yet roofs of its kivas are still partially in place, while mud plaster on walls of those secret, 700 year old clan "club" rooms frequently is intact.



PUEBLO PANORAMAS VII

MESA VERDE

By JOHN L. BLACKFORD

Cliff Palace

Peaceful farmer Indians who built Square Tower House in a Mesa Verde ravine chose the site for safety from enemy raiders. It gave security, but offered no immediate outlook other than toward opposite ledges of the rocky, tree-clad gorge. Yet when nut-gathering in the bordering pygmy forest above, or from nearby miniature cornfields, they beheld this distant impressive sight of famed Cliff Palace in its mighty, rock-roofed canyon niche. Occupation of Square Tower House lasted from primitive habitation in 200-300 A.D. until the Great Drouth of 1276-99.

